



LOCUS MAP
NOT TO SCALE

APPLICANT:
SIG SAUER REAL ESTATE, INC.
72 PEASE BLVD.
NEWINGTON, NH 03801
(603) 610-3000

ARCHITECT:
PORT ONE ARCHITECTS
959 ISLINGTON STREET
PORTSMOUTH, NH 03801
(603) 436-8891

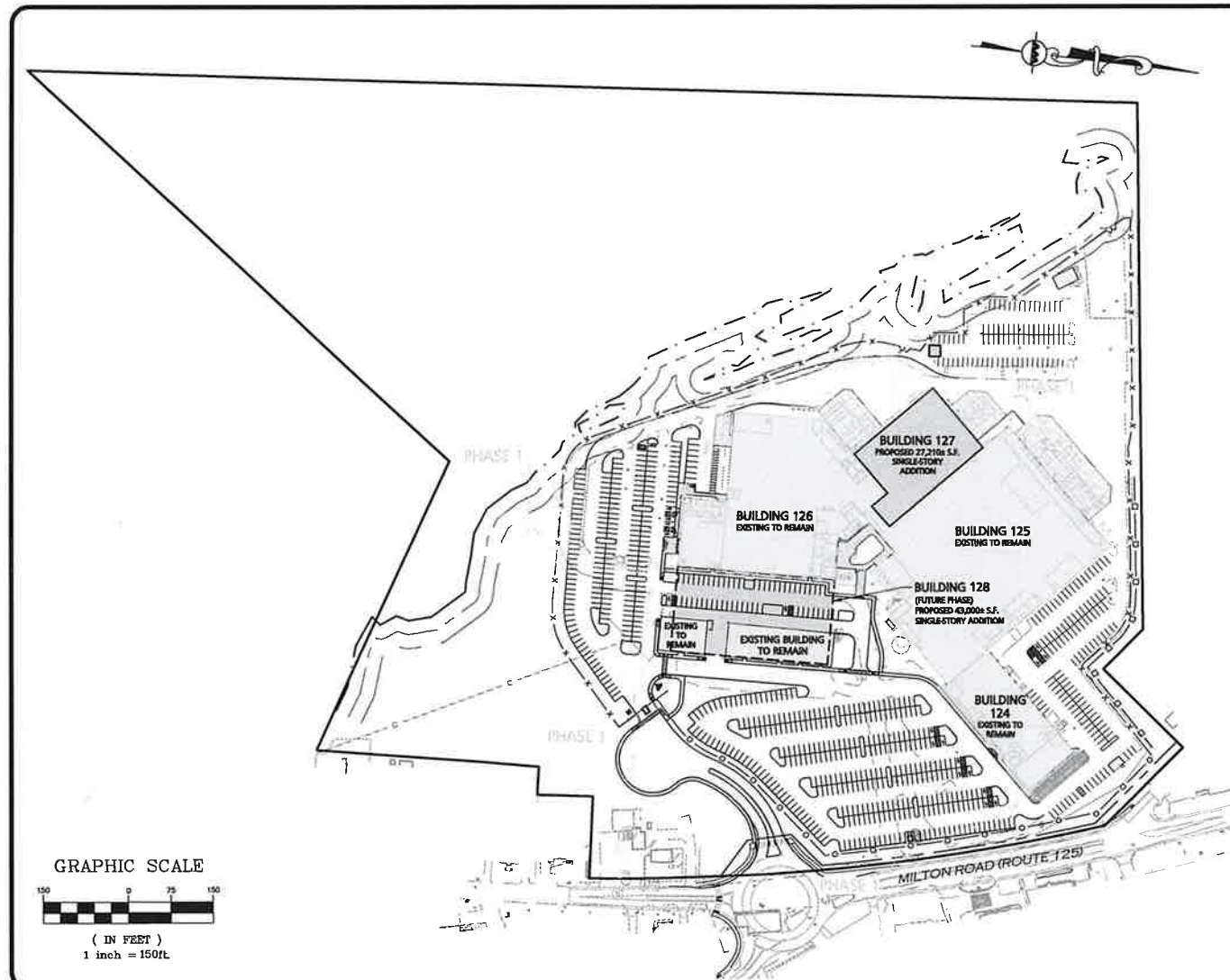
CIVIL ENGINEER / LANDSCAPE ARCHITECT
ALLEN & MAJOR ASSOCIATES, INC.
400 HARVEY ROAD
MANCHESTER, NH 03103
(603) 627-5500

WILDLIFE PROTECTION NOTES:

- ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV. EMAIL SUBJECT LINE: NHB23-0108, 7 AMAROSA DRIVE, WILDLIFE SPECIES OBSERVATION.
- PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHF&G IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION AS FEASIBLE.
- IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHF&G AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHF&G, IF ANY, TO ASSURE THE PROJECT DOES NOT APPRECIABLY JEOPARDIZE THE CONTINUED EXISTENCE OF THREATENED AND ENDANGERED SPECIES AS DEFINED IN FIS 1002.04
- THE NHF&G, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

PREVIOUS APPROVAL:

- PHASE 1 OF THE MASTER SITE PLAN WAS APPROVED BY THE ROCHESTER PLANNING BOARD ON MAY 15, 2023. CASE # 205/210 - 1,2,6 & 32,33 - 1/HC - 23



GRAPHIC SCALE
(IN FEET)
1 inch = 150ft



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

FOR MORE INFORMATION ABOUT THIS PLAN SET, CONTACT:
BRIAN D. JONES AT ALLEN & MAJOR ASSC., INC. 603-627-5500

PREPARED BY:



**ALLEN & MAJOR
ASSOCIATES, INC.**

civil & structural engineering • land surveying
environmental consulting • landscape architecture
www.allenmajor.com

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MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

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PHASE 2 OF MASTER SITE PLAN FOR SIG SAUER TAX MAP 205, LOTS 2 & 6 ROCHESTER, NH 03868

LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	REV 1	REV 2	REV 3	REV 4	REV 5
OVERALL COMPILED EXISTING CONDITIONS	V-101	07-25-23	-	-	-	-	-
COMPILED EXISTING CONDITIONS	V-101A	07-25-23	-	-	-	-	-
COMPILED EXISTING CONDITIONS	V-101B	07-25-23	-	-	-	-	-
COMPILED EXISTING CONDITIONS	V-101C	07-25-23	-	-	-	-	-
COMPILED EXISTING CONDITIONS	V-101D	07-25-23	-	-	-	-	-
SITE SPECIFIC SOIL MAPPING	C-100	07-25-23	-	-	-	-	-
OVERALL EROSION CONTROL PLAN	C-101	07-25-23	09-05-23	11-03-23	-	-	-
EROSION CONTROL PLAN	C-101A	07-25-23	-	-	-	-	-
EROSION CONTROL PLAN	C-101B	07-25-23	-	-	-	-	-
EROSION CONTROL PLAN	C-101C	07-25-23	-	-	-	-	-
EROSION CONTROL PLAN	C-101D	07-25-23	09-25-23	-	-	-	-
OVERALL LAYOUT & MATERIALS PLAN	C-102	07-25-23	-	-	-	-	-
LAYOUT & MATERIALS PLAN	C-102A	07-25-23	-	-	-	-	-
LAYOUT & MATERIALS PLAN	C-102B	07-25-23	09-25-23	-	-	-	-
LAYOUT & MATERIALS PLAN	C-102C	07-25-23	-	-	-	-	-
LAYOUT & MATERIALS PLAN	C-102D	07-25-23	09-25-23	-	-	-	-
OVERALL GRADING & DRAINAGE PLAN	C-103	07-25-23	09-05-23	09-25-23	-	-	-
GRADING & DRAINAGE PLAN	C-103A	07-25-23	09-05-23	-	11-03-23	-	-
GRADING & DRAINAGE PLAN	C-103B	07-25-23	09-05-23	10-23-23	11-03-23	-	-
GRADING & DRAINAGE PLAN	C-103C	07-25-23	09-05-23	10-23-23	11-03-23	-	-
GRADING & DRAINAGE PLAN	C-103D	07-25-23	09-05-23	09-25-23	11-03-23	-	-
OVERALL UTILITIES PLAN	C-104	07-25-23	-	-	-	-	-
UTILITIES PLAN	C-104A	07-25-23	09-05-23	-	-	-	-
UTILITIES PLAN	C-104B	07-25-23	-	-	-	-	-
UTILITIES PLAN	C-104C	07-25-23	09-05-23	-	-	-	-
UTILITIES PLAN	C-104D	07-25-23	09-05-23	-	-	-	-
OVERALL SITE LIGHTING PLAN	C-105	07-25-23	-	-	-	-	-
SITE LIGHTING PLAN	C-105A	07-25-23	-	-	-	-	-
SITE LIGHTING PLAN	C-105B	07-25-23	-	-	-	-	-
SITE LIGHTING PLAN	C-105C	07-25-23	-	-	-	-	-
SITE LIGHTING PLAN	C-105D	07-25-23	-	-	-	-	-
TRUCK TURNING PLAN	C-106A	07-25-23	-	-	-	-	-
TRUCK TURNING PLAN	C-106B	07-25-23	-	-	-	-	-
PHASING PLAN	C-107	11-03-23	-	-	-	-	-
SEWER PLAN & PROFILE	C-201	07-25-23	09-05-23	-	-	-	-
SEWER PLAN & PROFILE	C-202	07-25-23	09-05-23	-	-	-	-
SEWER PLAN & PROFILE	C-203	07-25-23	-	-	-	-	-
SEWER PLAN & PROFILE	C-204	07-25-23	09-05-23	-	-	-	-
DETAILS	C-501	07-25-23	09-25-23	-	-	-	-
DETAILS	C-502	07-25-23	-	-	-	-	-
DETAILS	C-503	07-25-23	-	-	-	-	-
DETAILS	C-504	07-25-23	-	-	-	-	-
DETAILS	C-505	07-25-23	09-05-23	09-25-23	11-03-23	-	-
DETAILS	C-506	07-25-23	-	11-03-23	-	-	-
DETAILS	C-507	07-25-23	-	-	-	-	-
DETAILS	C-508	07-25-23	09-05-23	-	-	-	-
DETAILS	C-509	07-25-23	-	-	-	-	-
DETAILS	C-510	07-25-23	-	-	-	-	-
DETAILS	C-511	07-25-23	09-05-23	-	-	-	-
OVERALL LANDSCAPE PLAN	L-101	07-25-23	-	-	-	-	-
LANDSCAPE PLAN	L-101A	07-25-23	-	-	-	-	-
LANDSCAPE PLAN	L-101B	07-25-23	-	-	-	-	-
LANDSCAPE PLAN	L-101C	07-25-23	-	-	-	-	-
LANDSCAPE PLAN	L-101D	07-25-23	09-25-23	-	-	-	-
LANDSCAPE NOTES	L-102	07-25-23	-	-	-	-	-
LANDSCAPE DETAILS	L-501	07-25-23	-	-	-	-	-

APPROVED - CITY PLANNING STAFF

SIGNATURE:

DATE:

11-21-23

DATE OF APPROVAL:

9-18-23

ISSUED FOR TRG 1: JULY 25, 2023

ISSUED FOR AOT PERMIT: SEPTEMBER 5, 2023

REVISED PER COMMENTS: SEPTEMBER 25, 2023

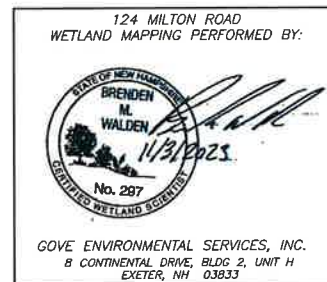
REVISED PER COMMENTS: OCTOBER 23, 2023

REVISED PER AOT COMMENTS: NOVEMBER 3, 2023



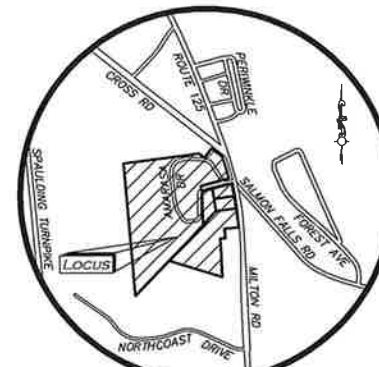
7 AMAROSA DRIVE WETLAND NOTES

1. WETLANDS WERE DELINEATED BY BH KEITH ASSOCIATES MARCH 2021 AND FIELD LOCATED BY NORWAY PLAINS ASSOCIATES, INC.
2. WETLAND DELINEATION WAS PERFORMED TO THE STANDARDS OF THE CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1, (JANUARY, 1987).
3. DOMINANT HYDRIC SOIL CONDITIONS WITHIN THE WETLANDS WERE IDENTIFIED BY GOVE ENVIRONMENTAL SERVICES, INC. UTILIZING THE CRITERIA OF FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3, 2004.
4. DOMINANCE OF WETLAND VEGETATION WAS ASSESSED BY GOVE ENVIRONMENTAL SERVICES, INC. UTILIZING THE NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: 1988 NORTHEAST (REGION 1) (PORTER B. REED, JR.)



124 MILTON ROAD WETLAND NOTES

1. WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. DECEMBER 2022 AND FIELD LOCATED BY ALLEN & MAJOR ASSOCIATES INC.
2. WETLAND DELINEATION WAS PERFORMED TO THE STANDARDS OF THE CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1, (JANUARY, 1987).
3. DOMINANT HYDRIC SOIL CONDITIONS WITHIN THE WETLANDS WERE IDENTIFIED BY GOVE ENVIRONMENTAL SERVICES, INC. UTILIZING THE CRITERIA OF FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3, 2004.
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LOCUS MAP
(NOT TO SCALE)

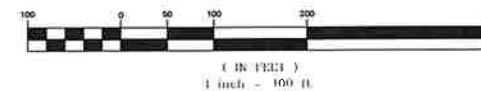
LEGEND

STONE BOUND (SB)	□
IRON PIPE (IP)	○
IRON ROD (IR)	○
SEWER MANHOLE (SMH)	⊙
UTILITY POLE	⊙
UTILITY POLE W/LIGHT	⊙
FIRE HYDRANT	⊙
GAS GATE	⊙
BOLLARD	⊙
GAS METER	⊙
ELECTRIC METER	⊙
MAILBOX	⊙
SIGN	⊙
TREE	⊙
BUSH / SHRUB	⊙
BUILDING	⊙
BUILDING OVERHANG	⊙
WETLAND	⊙
BUFFER ZONE	⊙
1' CONTOUR	⊙
5' CONTOUR	⊙
PROPERTY LINE	⊙
ABUTTERS LINE	⊙
TREE LINE	⊙
EDGE OF PAVEMENT	⊙
CHAIN LINK FENCE	⊙
STOCKADE FENCE	⊙
GAS LINE	⊙
OVERHEAD WIRES	⊙
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.

NOTES

1. THE PURPOSE OF THIS PLAN IS TO PROVIDE COMPILED EXISTING CONDITIONS INFORMATION. SEE SHEETS V-101A THROUGH V-101D FOR 1"=30' SCALE ENLARGEMENTS. THIS IS NOT A PROPERTY LINE SURVEY.
2. ON-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC., FROM NORWAY PLAINS ASSOCIATES, INC. "EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER, NH, FOR SIG SAUER INC.", DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
3. OFF-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM DOUCET SURVEY, LLC. "EXISTING CONDITIONS PLAN FOR HOYLE, TANNER, & ASSOCIATES, INC. OF MILTON ROAD (NH ROUTE 125) AND AMAROSA DRIVE INTERSECTION, ROCHESTER, NH" DATED JUNE 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
4. VERTICAL DATUM IS NAVD88. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.

GRAPHIC SCALE



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1-888-344-7233



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	11-03-23	ADDED WETLAND STAMPS
APPLICANT:		
SIG SAUER REAL ESTATE INC. 72 PEASE BLVD NEWINGTON, NH 03801		
PROJECT:		
PHASE 2 OF MASTER PLAN 7 & 16 AMAROSA DRIVE ROCHESTER, NH 03868		
PROJECT NO.	2912-01A	DATE: 07-25-23
SCALE:	1" = 100'	DWG. NAME: C2912-01A
DESIGNED BY:	AJR	CHECKED BY: BDJ



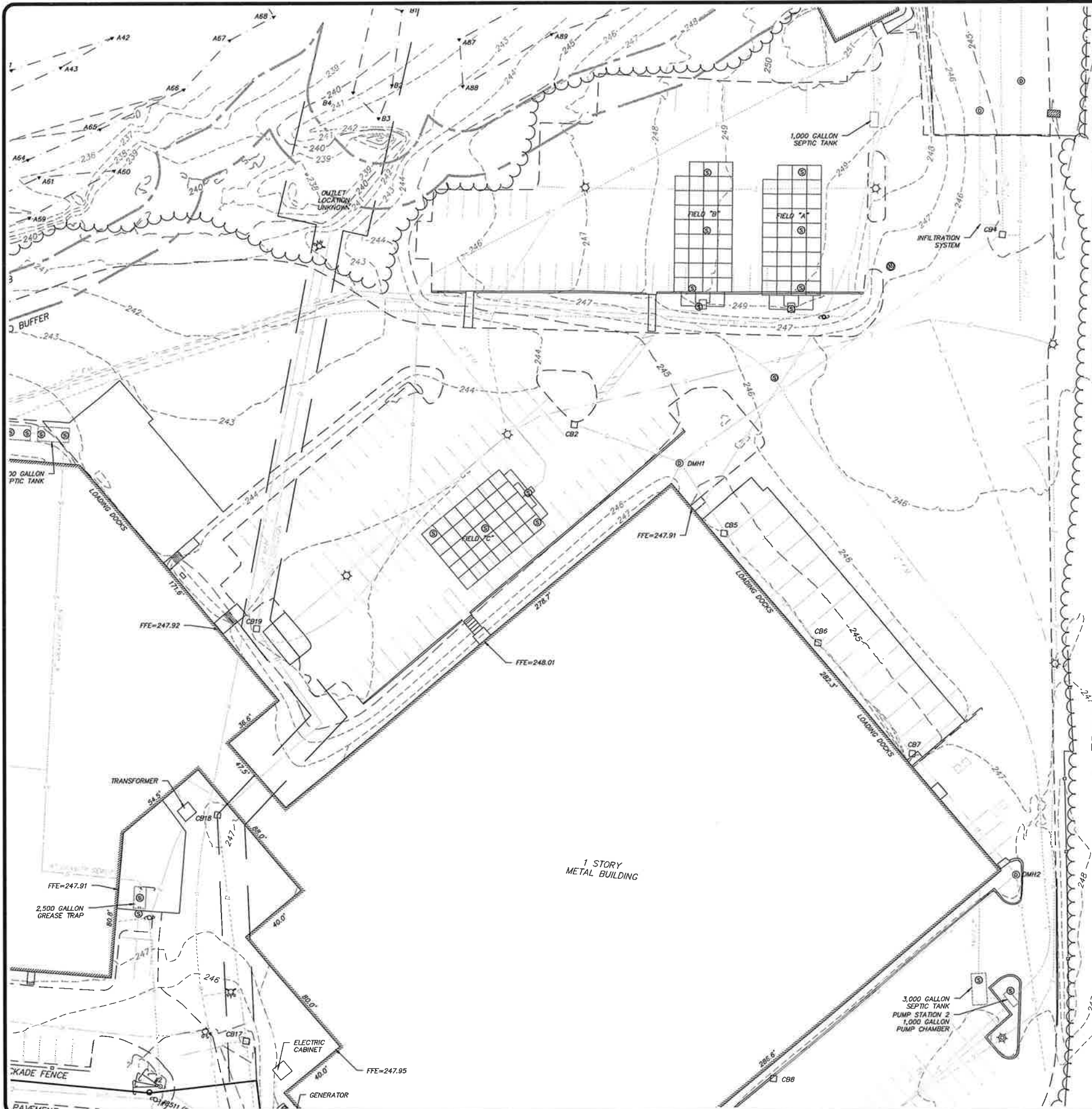
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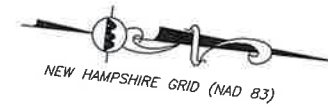
DRAWING TITLE:	SHEET No.
OVERALL COMPILED EXISTING CONDITIONS PLAN	V-101

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R:\PROJECTS\2012-01A\SURVEY\DRAWINGS\CURRENT\S-2012-01A-EC-COMBINED DRAWINGS.DWG



MAP 205, LOT 12
N/F
IZA M. SEEKINS
BK.994/PG.934



LEGEND

STONE BOUND (SB)	□
IRON PIPE (IP)	○
IRON ROD (IR)	○
SEWER MANHOLE (SMH)	⊙
UTILITY POLE	⊙
UTILITY POLE W/LIGHT	⊙
FIRE HYDRANT	⊙
GAS GATE	⊙
BOLLARD	⊙
GAS METER	⊙
ELECTRIC METER	⊙
MAILBOX	⊙
SIGN	⊙
TREE	⊙
BUSH / SHRUB	⊙
BUILDING	⊙
BUILDING OVERHANG	⊙
WETLAND	⊙
BUFFER ZONE	⊙
1' CONTOUR	⊙
5' CONTOUR	⊙
PROPERTY LINE	⊙
ABUTTERS LINE	⊙
TREE LINE	⊙
EDGE OF PAVEMENT	⊙
CHAIN LINK FENCE	⊙
STOCKADE FENCE	⊙
GAS LINE	⊙
OVERHEAD WIRES	⊙
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.

MAP 205, LOT 10
N/F
SHAWN F. MARSH
BK.3051/PG.347

MAP 205, LOT 9
N/F
KATHERINE L. LLOYD
SCRP.319-2017-ET-00230

MAP 205, LOT 8
N/F
MARY E. ALLYSON
BK.4456/PG.908

NOTES

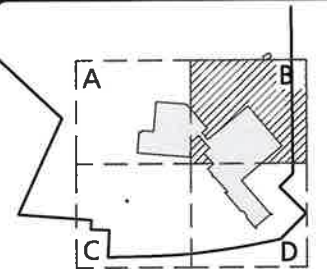
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- VERTICAL DATUM IS NAVD83. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.

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1-888-344-7233

GRAPHIC SCALE



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV DATE DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23

SCALE: 1" = 30' DWG. NAME: C2912-01A

DESIGNED BY: AJR CHECKED BY: BDI

PREPARED BY:

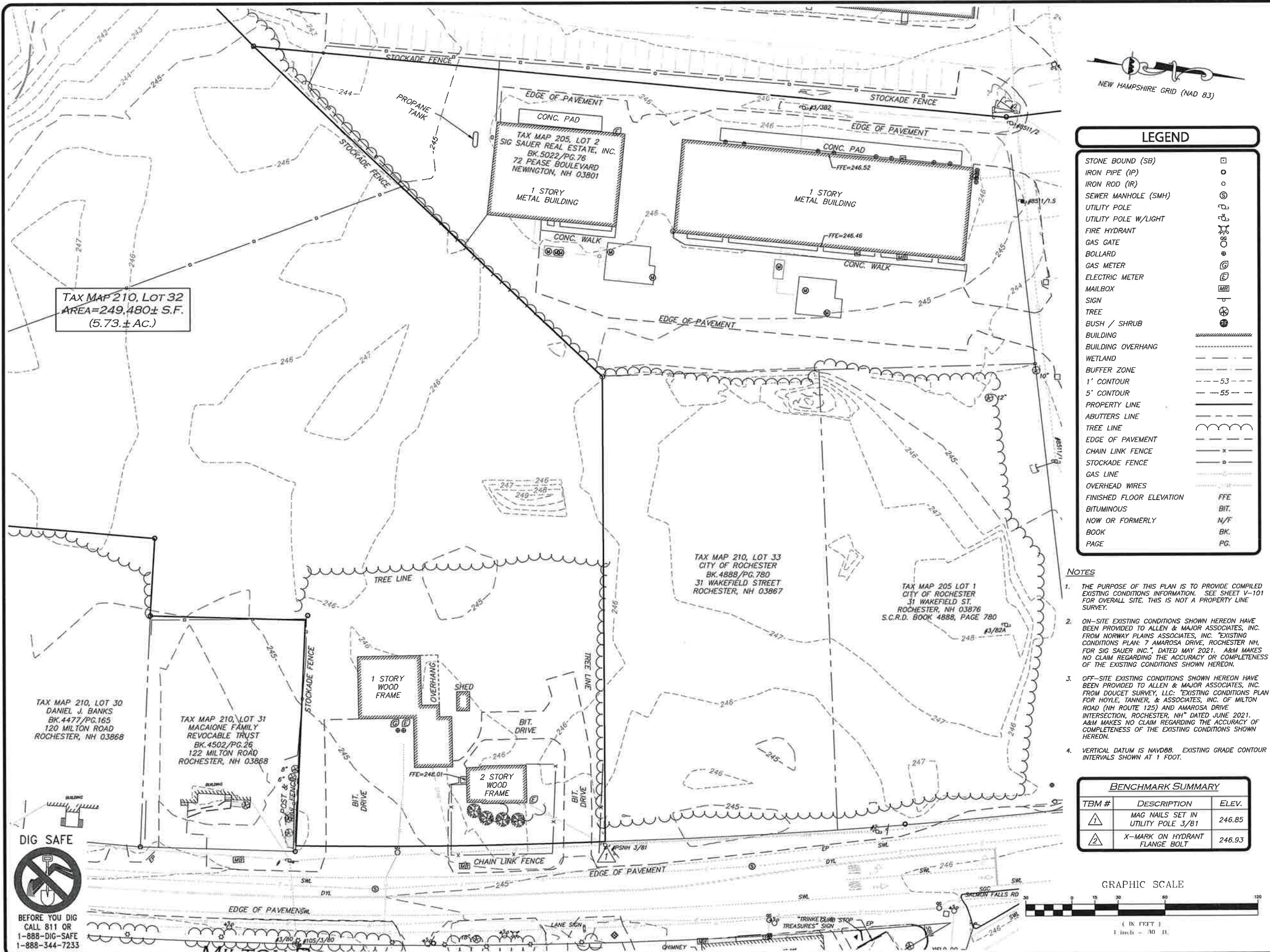
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DRAWING TITLE: COMPILED EXISTING CONDITIONS PLAN
SHEET No. V-101B

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SHEET KEY PLAN

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

**PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868**

REV	DATE	DESCRIPTION

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

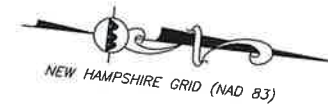
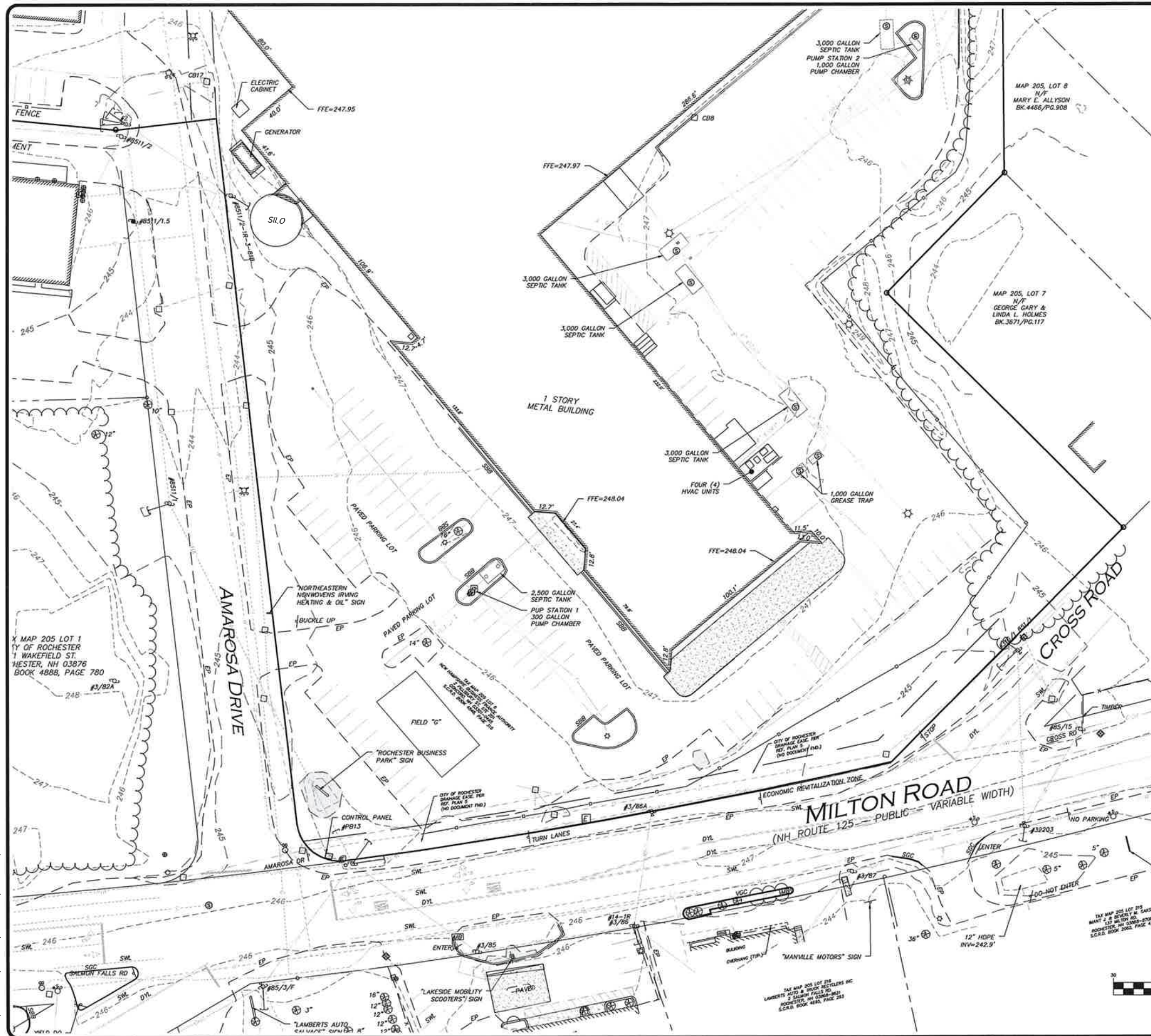
PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	AJR	CHECKED BY:	BDJ

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civil engineering • land surveying environmental consulting • landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501






























DRAWING TITLE:
COMPILED EXISTING CONDITIONS PLAN

SHEET No.
V-101C

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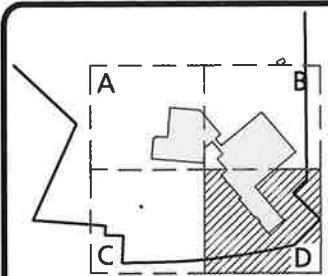
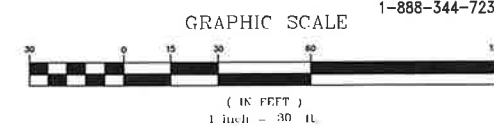


LEGEND

STONE BOUND (SB)	
IRON PIPE (IP)	
IRON ROD (IR)	
SEWER MANHOLE (SMH)	
UTILITY POLE	
UTILITY POLE W/LIGHT	
FIRE HYDRANT	
GAS GATE	
BOLLARD	
GAS METER	
ELECTRIC METER	
MAILBOX	
SIGN	
TREE	
BUSH / SHRUB	
BUILDING	
BUILDING OVERHANG	
WETLAND	
BUFFER ZONE	
1' CONTOUR	
5' CONTOUR	
PROPERTY LINE	
ABUTTERS LINE	
TREE LINE	
EDGE OF PAVEMENT	
CHAIN LINK FENCE	
STOCKADE FENCE	
GAS LINE	
OVERHEAD WIRES	
FINISHED FLOOR ELEVATION	FFE
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4. VERTICAL DATUM IS NAVD83. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
-----	------	-------------

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	AJR	CHECKED BY:	BDJ



**ALLEN & MAJOR
ASSOCIATES, INC.**
civil engineering • land surveying • environmental
consulting • landscape architecture
www.allenmajor.com

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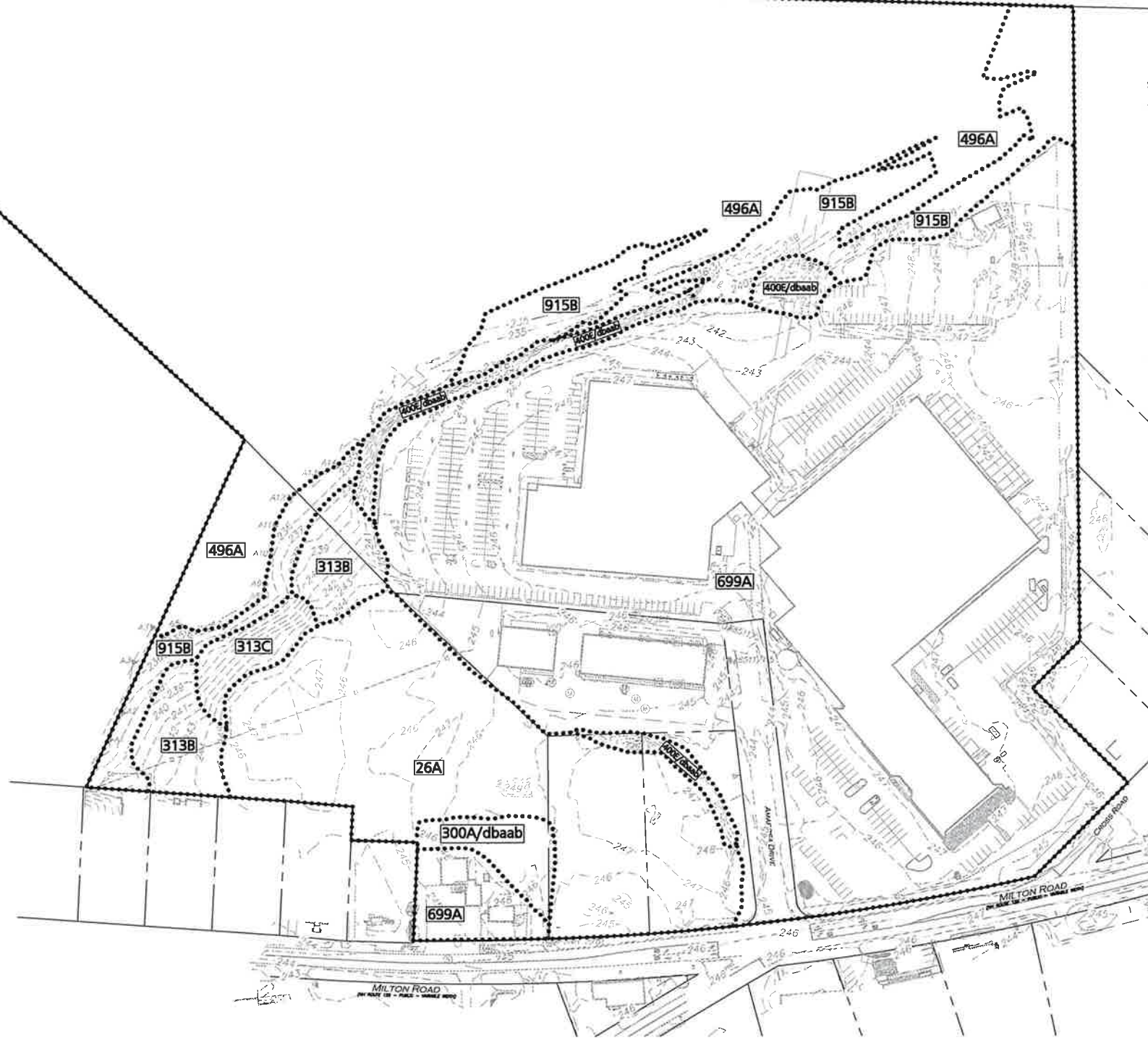
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DRAWING TITLE:
COMPILED EXISTING
CONDITIONS PLAN

SHEET No.
V-101D

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R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\G-2912-01_SOIL_MAPPING.DWG



SOIL NOTES:

1. THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.
2. THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED FEBRUARY 14, 2023, AND WAS PREPARED BY COURTNEY STEVENSON AND REVIEWED BY JP GOVE, CSS # 004, GOVE ENVIRONMENTAL SERVICES, INC.
3. SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.
4. HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.
5. HIGH INTENSITY SOIL MAP SYMBOLS, BASED UPON SSSSNE SPECIAL PUBLICATION 1, DECEMBER 2017, WERE ADDED TO THE SOIL LEGEND.

SITE SPECIFIC SOIL SURVEY PERFORMED BY:



GOVE ENVIRONMENTAL SERVICES
8 CONTINENTAL DRIVE, BLDG 2, UNIT H
EXETER, NH 03833

WETLAND NOTES:

1. "A" SERIES WETLAND FLAGS SHOWN HEREON, LOCATED ON 124 MILTON ROAD PROPERTY, WERE SET BY GOVE ENVIRONMENTAL IN DECEMBER, 2022.
2. WETLAND FLAGS LOCATED ON 7 AMAROSA PROPERTY WERE SET BY BH KEITH ASSOCIATES, INC. ON MARCH 31, 2021.
3. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS MANUAL: NORTH CENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
4. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2. UNITED STATES DEPARTMENT OF AGRICULTURE(2018).
5. NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2019 VERSION 4. FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
6. NATIONAL WETLAND PLANT LIST, VERSIONS 3.5 (2020).

SLOPE PHASE

SLOPE RANGE	A
0-3%	B
3-8%	C
8-15%	D
15-25%	E
25-50	F
50%+	

SITE SPECIFIC SOIL MAP UNIT LEGEND

SYMBOL*	MAP UNIT	HISS SYMBOL	HSG
26	WINDSOR, LOAMY SAND	111	A
313	DEERFIELD, LOAMY FINE SAND	311	B
915	DEERFIELD VARIANT (SWPD)	411	C
496	NATCHAUG, MUCK	681	D
300A/dbaab	UDIPSAMMENTS, NEARLY LEVEL	361	B
400e/dbaab	UDORTMENTS, SANDY	361	B
699	URBAN LAND	761	B

* REFER TO ACCOMPANYING REPORT FOR SUPPLEMENTAL SYMBOL EXPLANATION.

GRAPHIC SCALE



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV DATE DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23

SCALE: 1" = 100' DWG. NAME: C2912-01A

DESIGNED BY: SM CHECKED BY: BDJ

PREPARED BY:



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ASSOCIATES, INC.**

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DRAWING TITLE: SHEET No.

SITE SPECIFIC SOIL
MAP PLAN

C-100

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GENERAL SEQUENCE OF CONSTRUCTION:

1. CONTACT THE CITY ENGINEERING DEPARTMENT AT LEAST TWO (2) WEEKS PRIOR TO START OF CONSTRUCTION.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCES. SITE ACCESS SHALL BE ACHIEVED ONLY FROM THE DESIGNATED CONSTRUCTION ENTRANCE.
3. PREPARE TEMPORARY PARKING AND STORAGE AREA. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAY DOWN, WHEEL WASH, CONCRETE WASHOUT, MASON'S AREA, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., DENOTE THEM ON THE SITE MAPS IMMEDIATELY AND NOTE ANY CHANGES IN THE LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.
4. INSTALL THE TUBULAR BARRIERS AND SILT SACKS AS SHOWN HEREON. SEE ALSO SHEETS C-101A THROUGH C-101D.
5. CLEAR AND GRUB THE SITE.
6. CONSTRUCT TEMPORARY SEDIMENTATION AND SEDIMENT TRAP BASINS AS NECESSARY.

7. BEGIN GRADING THE SITE.
8. CONSTRUCT STORMWATER MEASURES. SITE SHALL BE STABILIZED PRIOR TO STORMWATER MEASURES RECEIVING RUNOFF.
9. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES. TEMPORARILY SEED DENuded AREAS. ALL CUT AND FILL SLOPES SHALL BE SEEDED / LOAMED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE, EXCEPT WHERE RIP RAP IS APPLIED.
10. INSTALL BUILDING, UTILITIES, STORM SEWERS, CURBS AND GUTTERS.
11. INSTALL INLET PROTECTION DEVICES AROUND ALL STORM DRAIN STRUCTURES.
12. INSTALL RIP RAP AROUND OUTLET STRUCTURES.
13. FINALIZE GRADING, AND PREPARE SITE FOR PAVING. NOTE, ALL PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
14. PAVE SITE. COMPLETE FINISH GRADING AND INSTALL PERMANENT SEEDING AND PLANTING.

15. ONCE SITE IS STABILIZED, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES.
16. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER ALL RAINFALL EVENTS GREATER THAN 0.25", AND SHALL BE MAINTAINED, REPAIRED OR REPLACED AS REQUIRED OR AT THE DIRECTION OF THE OWNER'S ENGINEER, OR THE TOWN ENGINEER.
17. SEDIMENT ACCUMULATION UP-GRADE OF THE TUBULAR BARRIERS GREATER THAN 6" IN DEPTH SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
18. IF IT APPEARS THAT SEDIMENT IS EXITING THE SITE, SILT SACKS SHALL BE INSTALLED IN ALL CATCH BASINS ADJACENT TO THE SITE. SEDIMENT ACCUMULATION ON ALL ADJACENT CATCH BASIN INLETS SHALL BE REMOVED AND THE SILT SACK REPLACED IF TORN OR DAMAGED.
19. THE CONTRACTOR SHALL COMPLY WITH THE GENERAL AND EROSION NOTES AS SHOWN ON THE SITE DEVELOPMENT PLANS.
20. IN AREAS WHERE FINAL GRADING HAS NOT OCCURRED, TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN FIVE CALENDAR DAYS FOR EXPOSED SOIL AREAS THAT ARE WITHIN 100 FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.

SEEDINGS FOR TEMPORARY COVER

SPECIES	SEEDING RATE (LB/UNIT AREA)		RECOMMENDED SEEDING DATES
	1,000 S.F.	ACRE	
ANNUAL RYEGRASS	1	40	APRIL 1 - JUNE 1 AUG. 15 - SEPT. 15
FOXTAIL MILLET	0.7	30	MAY 1 - JUNE 30
OATS	2	80	APRIL 1 - JULY 1 AUG. 15 - SEPT. 15
WINTER RYE	3	120	AUG. 15 - OCT. 15

"HYDRO-SEEDING" APPLICATIONS WITH APPROPRIATE SEED-MULCH-FERTILIZER MIXTURES MAY ALSO BE USED.

LEGEND

- TUBULAR BARRIER
- CATCH BASIN FILTER
- STABILIZED ENTRANCE
- STOCKPILE/STAGING AREA
- LIMIT OF DISTURBANCE
- LIMIT OF 'CLEAR AND GRUB'
- BUILDING TO BE REMOVED
- PAVEMENT TO BE REMOVED

GENERAL NOTES:

1. THE PURPOSE OF THIS PLAN IS TO PROVIDE OVERALL EROSION CONTROL INFORMATION FOR THE PROPOSED BUILDING ADDITIONS AND ASSOCIATED SITE IMPROVEMENTS. SEE SHEETS C-101A THROUGH C-101D FOR 1"=30' SCALE ENLARGEMENTS.
2. EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLANS ASSOCIATES, INC. EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER, NH, FOR SIG SAUER INC., DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
3. ALL WORK MUST CONFORM TO THE CITY OF ROCHESTER, DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND ANY WORK WITHIN THE CITY RIGHT-OF-WAY REQUIRES AN EXCAVATION PERMIT.
4. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
5. ALL ELEVATIONS REFER TO NAVD '88.
6. NO MATERIAL CONTAINING ANY LIVING OR VIABLE PORTION OF PLANTS ON THE NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST (AGR3800 TABLE 3800.1) SHALL BE TRANSPORTED TO OR FROM CONSTRUCTION SITE WITHOUT NOTIFICATION AND APPROVAL FROM THE NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE PER RSA 430:55.
7. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED IN ACCORDANCE WITH ENV-A1000.
8. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
9. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE, THE PROPERTY OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE CITY.
10. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM WITH RAINFALL AMOUNT GREATER THAN 0.25 INCHES. THE INSPECTIONS SHALL VERIFY THAT THE STRUCTURAL BMPs SHOWN AND DESCRIBED ON THE PLANS ARE IN GOOD CONDITION AND ARE MINIMIZING EROSION. A MAINTENANCE AND INSPECTION REPORT SHALL BE MADE WITH EACH INSPECTION. COMPLETED INSPECTION FORMS SHALL BE KEPT ON SITE FOR THE DURATION OF THE PROJECT AND BE MADE AVAILABLE FOR REVIEW BY THE CITY UPON REQUEST.
11. THE CONTRACTOR SHALL VERIFY EROSION CONTROL MEASURES, WHICH ARE PLACED IN OR NEAR CITY RIGHTS-OF-WAY, ARE PROPERLY MAINTAINED JUST PRIOR TO AND/OR DURING LARGE STORM EVENTS IN ORDER TO PREVENT POTENTIAL STREET FLOODING DURING THE CONSTRUCTION DURATION.
12. A NOTICE OF INTENT (NOI) SHALL BE PREPARED AND SUBMITTED TO THE EPA UNDER THE NPDES GSF. A SWPPP SHALL BE PREPARED AND MAINTAINED ON SITE. THE NOI AND SWPPP SHALL ALSO BE SUBMITTED TO DPW.

ALTERATION OF TERRAIN NOTES

1. ARTIFICIAL DETENTION IN WETLANDS IS NOT ALLOWED.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER Agr 3800 RELATIVE TO INVASIVE SPECIES.
3. PERIMETER CONTROLS MUST BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
4. PERIMETER CONTROLS MUST BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
5. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs ARE STABILIZED.
6. STORMWATER PONDS, INFILTRATION BASINS AND SWALES MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. LIMIT THE LENGTH OF EXPOSURE OF UNSTABILIZED SOIL TO 45 DAYS OR LESS.
8. LIMIT THE AREA OF DISTURBANCE TO LESS THAN 5 ACRES AT ANYTIME.
9. CUT AND FILL SLOPES MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
10. ROADWAYS AND PARKING AREAS MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
11. STABILIZED MEANS:
 - A MINIMUM OF 85% OF VEGETATIVE COVER HAS BEEN ESTABLISHED;
 - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
 - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED IN ACCORDANCE WITH ENV-WQ 1508.03.
12. TEMPORARY SEEDING SPECIFICATIONS ARE SHOWN IN THE TABLE HEREON. PERMANENT SEEDING SPECIFICATIONS ARE SHOWN ON SHEET L-102.
13. STANDARD WINTER CONSTRUCTION REQUIREMENTS:
 - a. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15 SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
 - b. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
 - c. AFTER OCTOBER 15, INCOMPLETE PARKING AREAS WHERE ACTIVE CONSTRUCTION HAS STOPPED FOR THE WINTER SHALL BE PROTECTED WITH A MINIMUM 3 INCH LAYER OF BASE COURSE GRAVELS (NHDOT ITEM 304.1 OR 304.2).
14. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY 0.50 INCH, OR MORE, OF RAINFALL.

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1-888-344-7233

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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

11-03-23	REVISED PER AOT COMMENTS
09-05-23	ISSUED FOR AOT
REV	DATE DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 100'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:



ALLEN & MAJOR ASSOCIATES, INC.

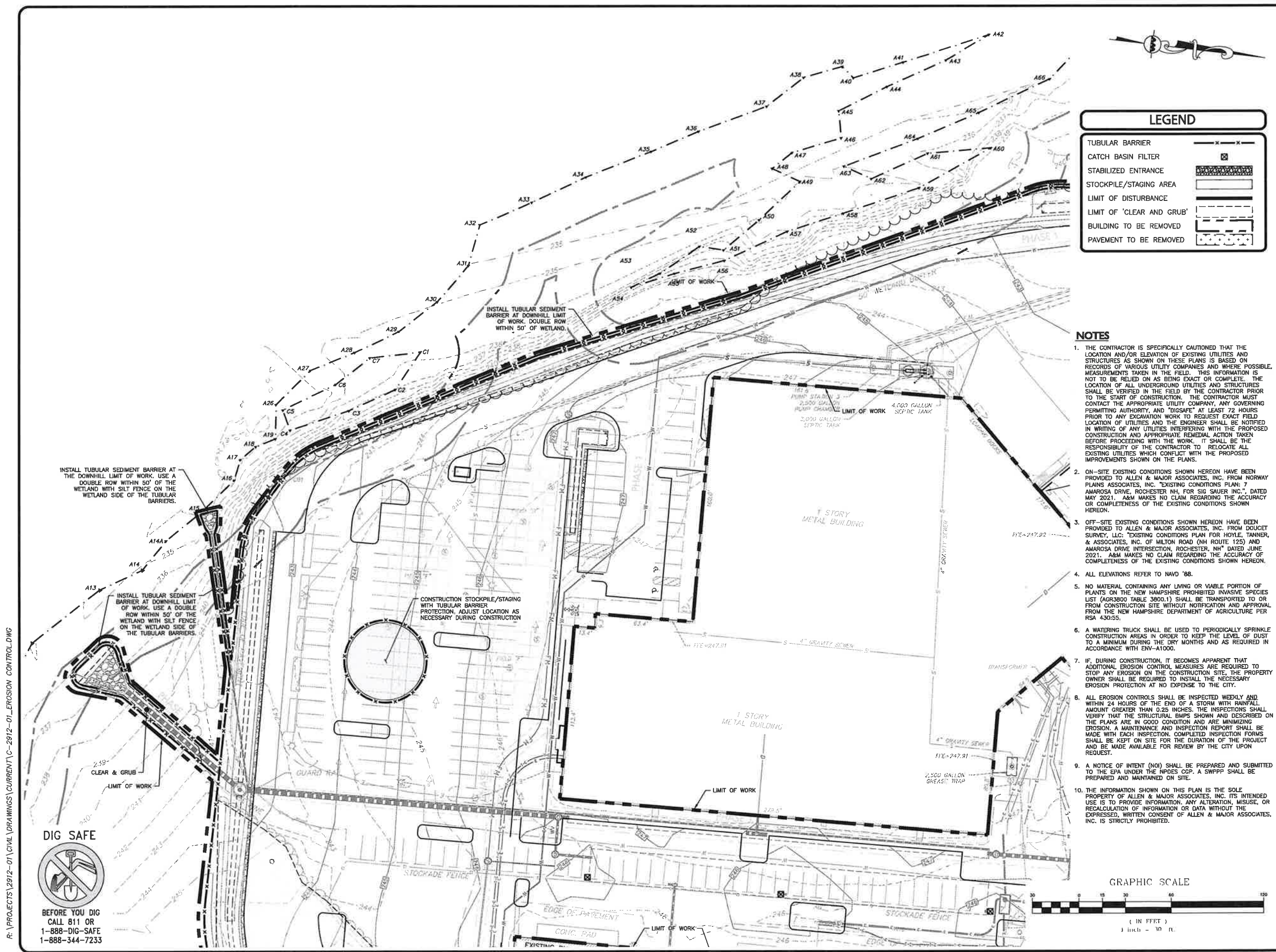
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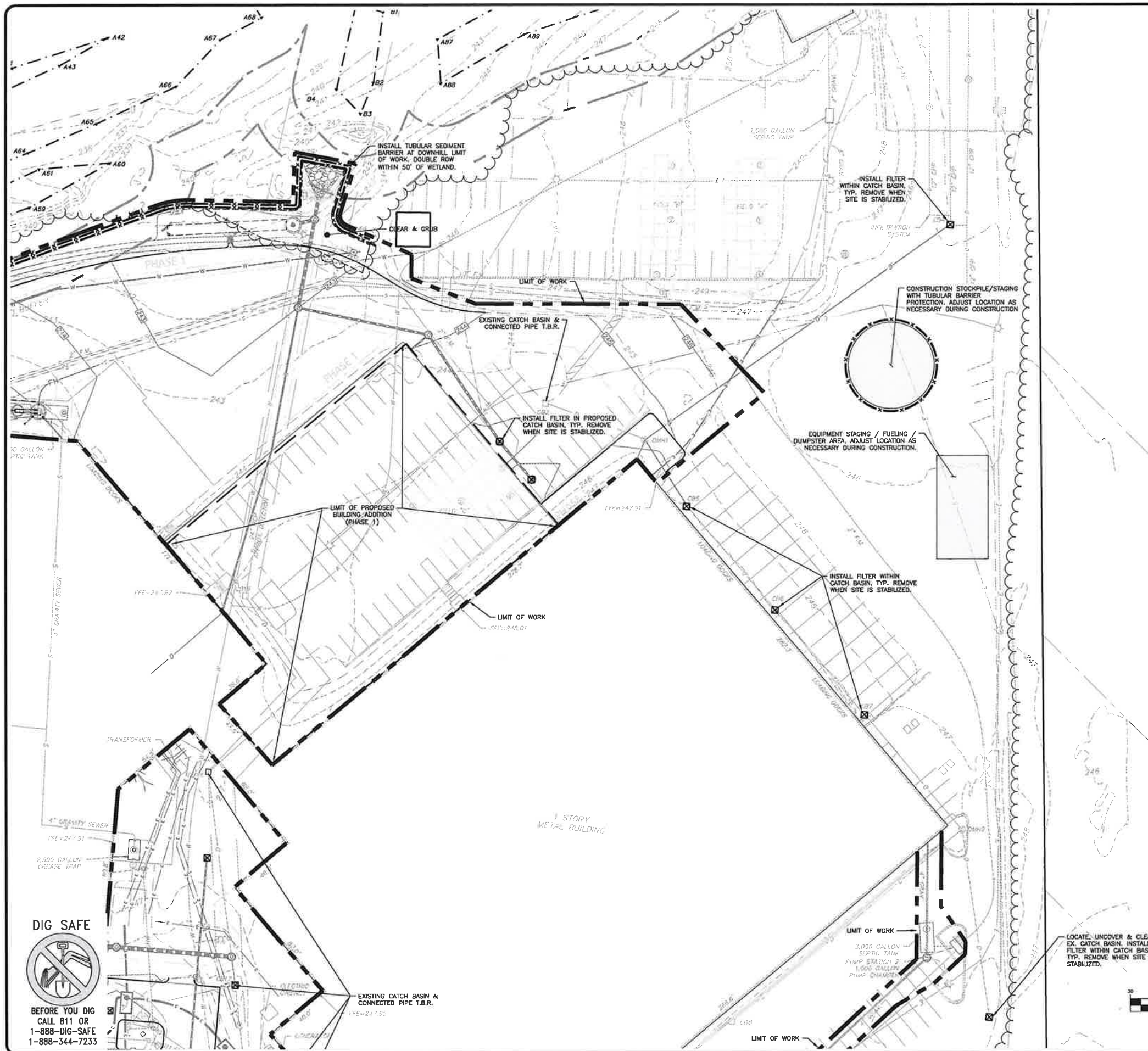
DRAWING TITLE: **OVERALL EROSION CONTROL PLAN**
SHEET NO. **C-101**

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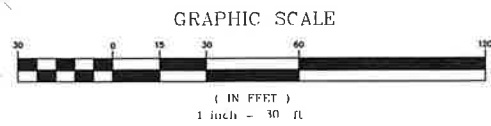
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LEGEND

TUBULAR BARRIER
CATCH BASIN FILTER
STABILIZED ENTRANCE
STOCKPILE/STAGING AREA
LIMIT OF DISTURBANCE
LIMIT OF 'CLEAR AND GRUB'
BUILDING TO BE REMOVED
PAVEMENT TO BE REMOVED

- NOTES**
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
 - ON-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. "EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER, NH, FOR SIG SAUER INC.", DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
 - OFF-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM DOUCET SURVEY, LLC: "EXISTING CONDITIONS PLAN FOR HOYLE, TANNER, & ASSOCIATES, INC. OF MILTON ROAD (NH ROUTE 125) AND AMAROSA DRIVE INTERSECTION, ROCHESTER, NH" DATED JUNE 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
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SHEET KEY PLAN

LEGEND

TUBULAR BARRIER
CATCH BASIN FILTER
STABILIZED ENTRANCE
STOCKPILE/STAGING AREA
LIMIT OF DISTURBANCE
LIMIT OF 'CLEAR AND GRUB'
BUILDING TO BE REMOVED
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- A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED IN ACCORDANCE WITH ENV-A1000.
- IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE, THE PROPERTY OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE CITY.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM WITH RAINFALL AMOUNT GREATER THAN 0.25 INCHES. THE INSPECTIONS SHALL VERIFY THAT THE STRUCTURAL BMPs SHOWN AND DESCRIBED ON THE PLANS ARE IN GOOD CONDITION AND ARE MINIMIZING EROSION. A MAINTENANCE AND INSPECTION REPORT SHALL BE MADE WITH EACH INSPECTION. COMPLETED INSPECTION FORMS SHALL BE KEPT ON SITE FOR THE DURATION OF THE PROJECT AND BE MADE AVAILABLE FOR REVIEW BY THE CITY UPON REQUEST.
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REVISIONS

REV	DATE	DESCRIPTION

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A **DATE:** 07-25-23

SCALE: 1" = 30' **DWG. NAME:** C2912-01A

DESIGNED BY: SM **CHECKED BY:** BDJ

PREPARED BY:

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civil engineering • land surveying environmental consulting • landscape architecture
www.allenmajor.com
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MANCHESTER, NH 03103
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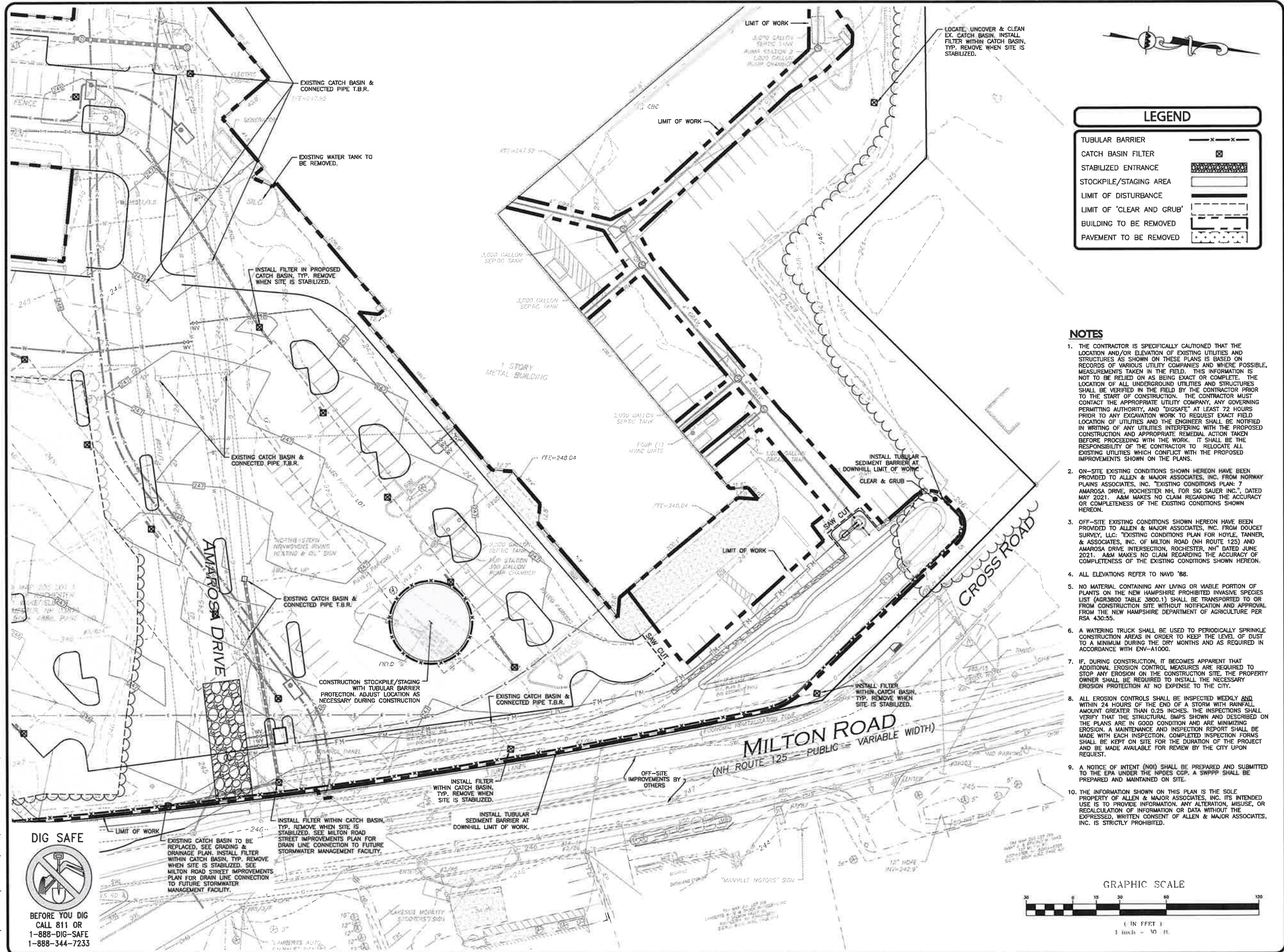
WORKSHEET NO. 11-03-23

DRAWING TITLE: EROSION CONTROL PLAN

SHEET No. C-101B

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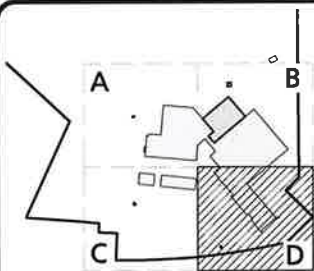
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LEGEND

TUBULAR BARRIER	---
CATCH BASIN FILTER	⊠
STABILIZED ENTRANCE	▨
STOCKPILE/STAGING AREA	▨
LIMIT OF DISTURBANCE	---
LIMIT OF 'CLEAR AND GRUB'	---
BUILDING TO BE REMOVED	---
PAVEMENT TO BE REMOVED	---

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SHEET KEY PLAN

PROFESSIONAL ENGINEER

BRIAN D. JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

11.03.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	09-25-23	REVISED PER COMMENTS

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:

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DRAWING TITLE:	SHEET No.
EROSION CONTROL PLAN	C-101D

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ZONING SUMMARY TABLE - GENERAL INDUSTRIAL ZONE 7,8,16 AMAROSA DRIVE & 0 MILTON ROAD		
ITEM	REQUIRED/ALLOWED	PROPOSED
MINIMUM LOT AREA	30,000 SF ⁽¹⁾	1,721,000± SF
MINIMUM LOT FRONTAGE	100 FT	729± FT (MILTON ROAD) 197± FT (CROSS ROAD)
MAXIMUM LOT COVERAGE	75%	39%
MINIMUM FRONT YARD SETBACK	25 FT	33.9± FT
MINIMUM REAR YARD SETBACK	25 FT	296.7± FT
MINIMUM SIDE YARD SETBACK	20 FT	56.4± FT
MAXIMUM BUILDING HEIGHT	55 FT	<55 FT

ZONING TABLE NOTES:

1. ALL USES WITH WATER OR SEWER.

ZONING SUMMARY TABLE - HIGHWAY COMMERCIAL ZONE 124 MILTON ROAD		
ITEM	REQUIRED/ALLOWED	PROPOSED
MINIMUM LOT AREA	20,000 SF	249,277± SF
MINIMUM LOT FRONTAGE	100 FT	199± FT (MILTON ROAD)
MAXIMUM LOT COVERAGE	85%	13%
MINIMUM FRONT YARD SETBACK	20 FT	291.8± FT
MINIMUM REAR YARD SETBACK	25 FT	N/A
MINIMUM SIDE YARD SETBACK	10 FT	175.5± FT
MAXIMUM NUMBER OF STORIES	3	1

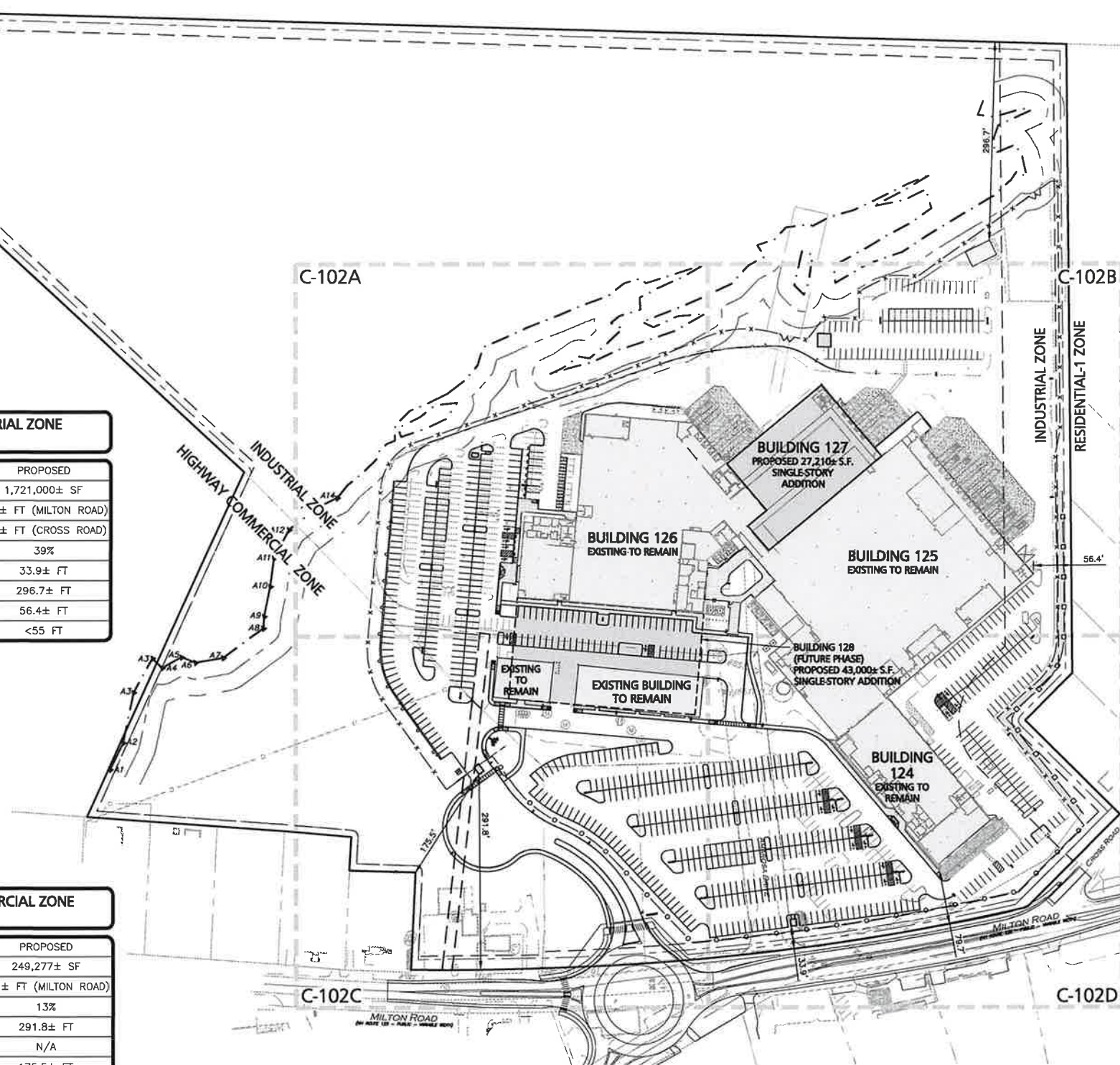
ZONING TABLE NOTES:

1. A SPECIAL EXCEPTION IS REQUIRED FOR THE "INDUSTRY, HEAVY" USE WITHIN THE HIGHWAY COMMERCIAL DISTRICT.

DIG SAFE



BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233



PARKING SUMMARY TABLE			
CITY OF ROCHESTER, NH - SITE PLAN REVIEW REGULATIONS: SECTION 10 - PARKING & CIRCULATION			
INDUSTRIAL USE (INDUSTRY, HEAVY): 271,800± SF (TOTAL GFA), 25,000± SF (OFFICE GFA)	MINIMUM REQUIRED	EXISTING PARKING	PROPOSED PARKING
1 SPACE PER 1,000 SF GFA → 1 SPACE X (271,800 SF/1,000 SF) = 271.8	347	587	806
3 SPACES PER 1,000 SF GFA DEDICATED TO OFFICE USE → 3 SPACES X (25,000 SF/1,000 SF) = 75.0			

PARKING TABLE NOTES:

1. PARKING STALLS ARE TO BE 9' X 18'.

ADA SPACES REQUIRED:

(500-1,000) TOTAL PARKING SPACES PROVIDED - 2% OF THE TOTAL PARKING PROVIDED SHALL BE ADA ACCESSIBLE; 1/6 OF THE ADA ACCESSIBLE SPACES PROVIDED SHALL BE VAN ACCESSIBLE.

REQUIRED: 16 SPACES, 3 BEING VAN ACCESSIBLE.
PROVIDED: 18 VAN ACCESSIBLE SPACES.

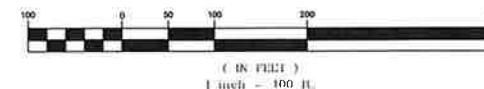
LEGEND

PROPERTY LINE	---
SIGN	+
BOLLARD	•
BUILDING	[Solid Grey Box]
BUILDING SETBACK LINE	- - -
LANDSCAPE BUFFER LINE	- - -
PARKING COUNT	10
SIDEWALK	[Hatched Box]
CURB	[Solid Line]
PARKING STRIPING	[Hatched Box]
ROADWAY STRIPING	[Hatched Box]
STEEL GUARDRAIL	[Hatched Box]
HEAVY DUTY CONCRETE	[Hatched Box]
DECORATIVE STEEL FENCE	[Hatched Box]
VINYL/WOOD SCREEN FENCE	[Hatched Box]
CHAIN LINK FENCE	[Hatched Box]
SAW-CUT LINE	- - -
PHASE 1 LINE	[Solid Line]
SNOW STORAGE	[Hatched Box]

NOTES

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GRAPHIC SCALE



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV DATE DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23

SCALE: 1" = 100' DWG. NAME: C2912-01A

DESIGNED BY: SM CHECKED BY: BDJ

PREPARED BY:

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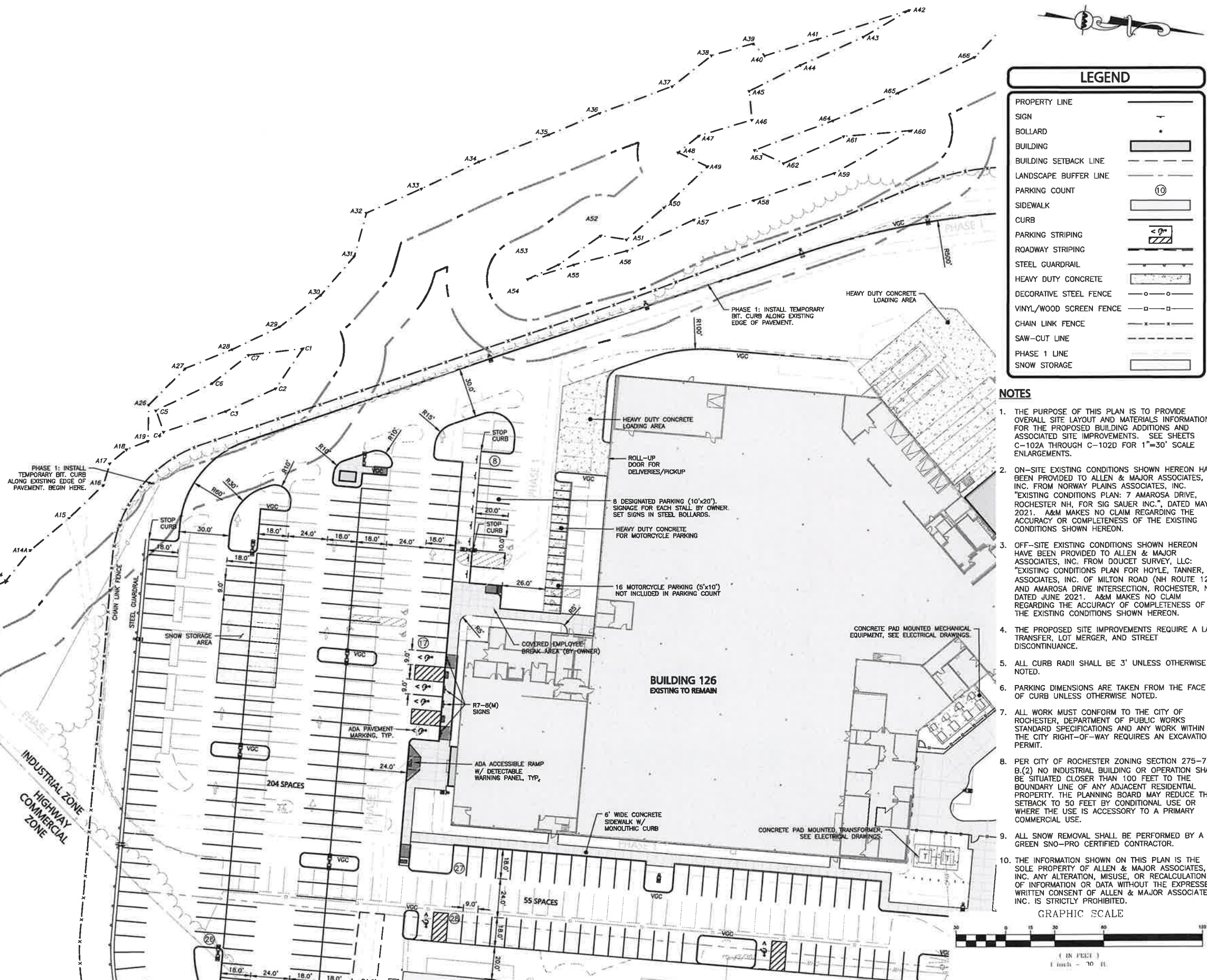
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DRAWING TITLE:
OVERALL LAYOUT
& MATERIALS PLAN

SHEET No.
C-102

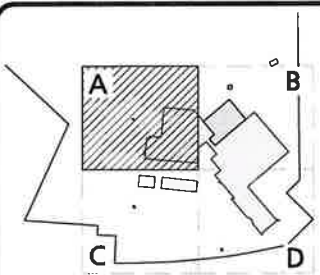
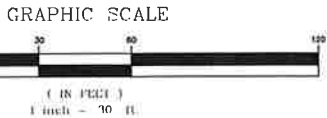
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LEGEND	
PROPERTY LINE	---
SIGN	+
BOLLARD	•
BUILDING	▬
BUILDING SETBACK LINE	---
LANDSCAPE BUFFER LINE	---
PARKING COUNT	⑩
SIDEWALK	▬
CURB	▬
PARKING STRIPING	▬
ROADWAY STRIPING	▬
STEEL GUARDRAIL	▬
HEAVY DUTY CONCRETE	▬
DECORATIVE STEEL FENCE	▬
VINYL/WOOD SCREEN FENCE	▬
CHAIN LINK FENCE	▬
SAW-CUT LINE	▬
PHASE 1 LINE	▬
SNOW STORAGE	▬

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SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
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72 PEASE BLVD
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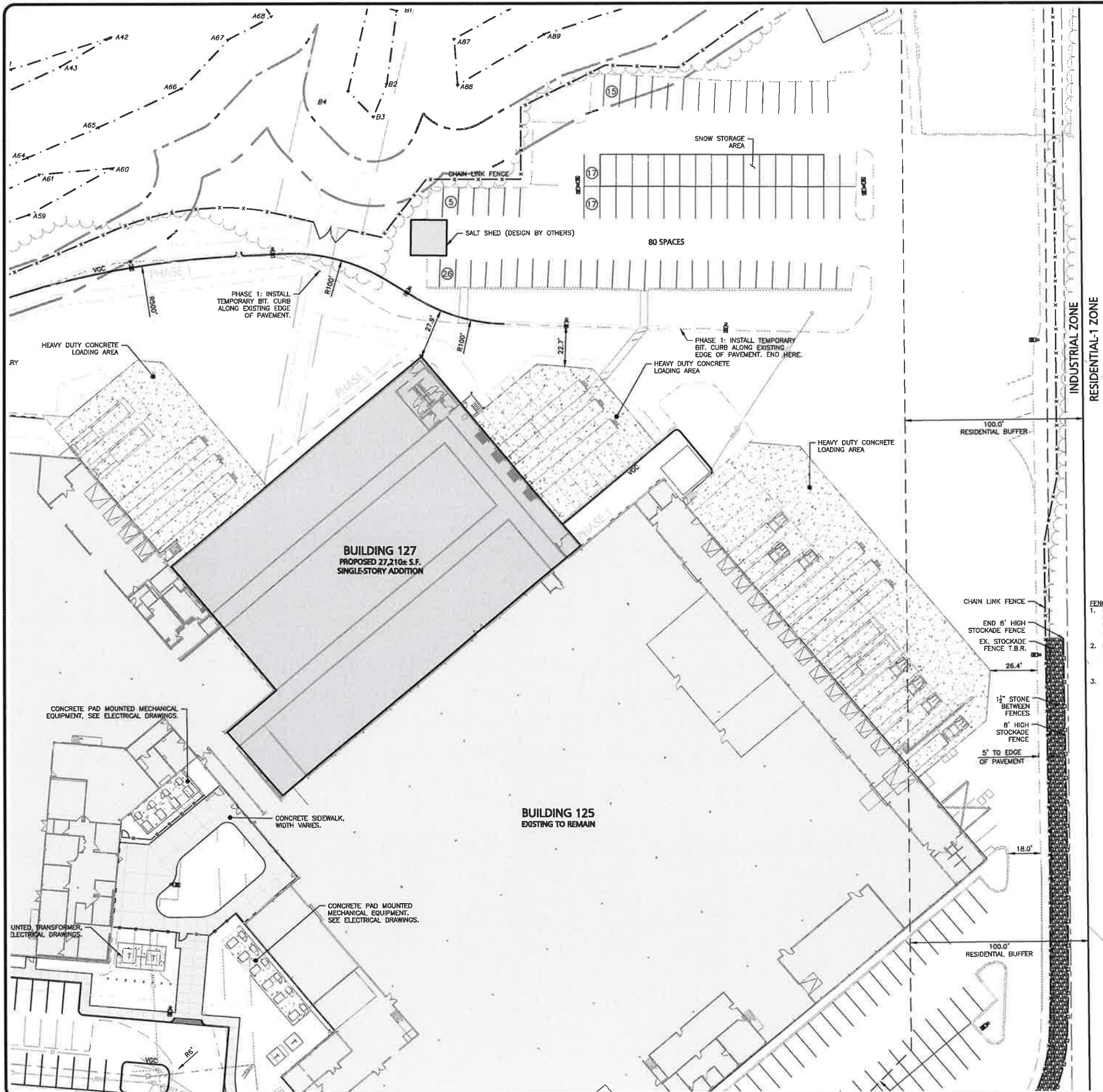
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DRAWING TITLE: LAYOUT & MATERIALS PLAN	SHEET No. C-102A
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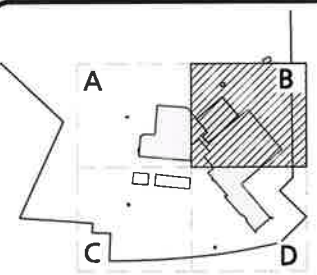
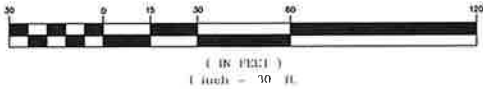
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SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	09-25-23	REVISED PER COMMENTS

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
**PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868**

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying • environmental consulting • landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

WORURN, MA • LAKEVILLE, MA • MANCHESTER, NH

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DRAWING TITLE:	SHEET No.
LAYOUT & MATERIALS PLAN	C-102B

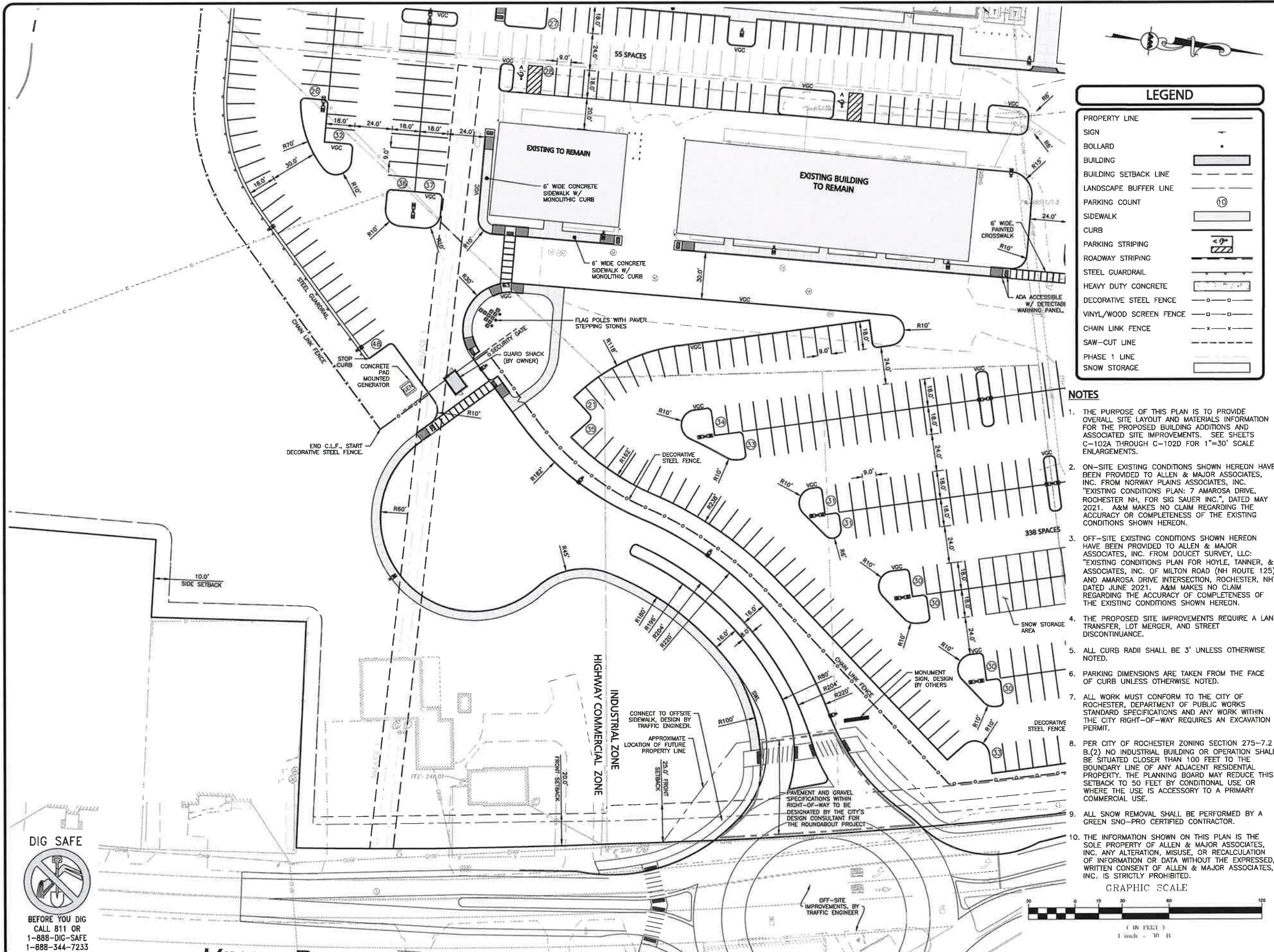
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BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233



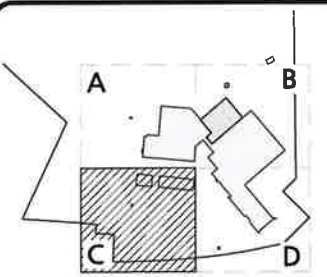
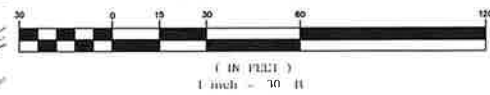
LEGEND

PROPERTY LINE	---
SIGN	+
BOLLARD	•
BUILDING	▭
BUILDING SETBACK LINE	---
LANDSCAPE BUFFER LINE	---
PARKING COUNT	10
SIDEWALK	▭
CURB	▭
PARKING STRIPING	▭
ROADWAY STRIPING	▭
STEEL GUARDRAIL	▭
HEAVY DUTY CONCRETE	▭
DECORATIVE STEEL FENCE	▭
VINYL/WOOD SCREEN FENCE	▭
CHAIN LINK FENCE	▭
SAW-CUT LINE	---
PHASE 1 LINE	---
SNOW STORAGE	▭

NOTES

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GRAPHIC SCALE



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV DATE DESCRIPTION

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23

SCALE: 1" = 30' DWG. NAME: C2912-01A

DESIGNED BY: SM CHECKED BY: BDJ

PREPARED BY:

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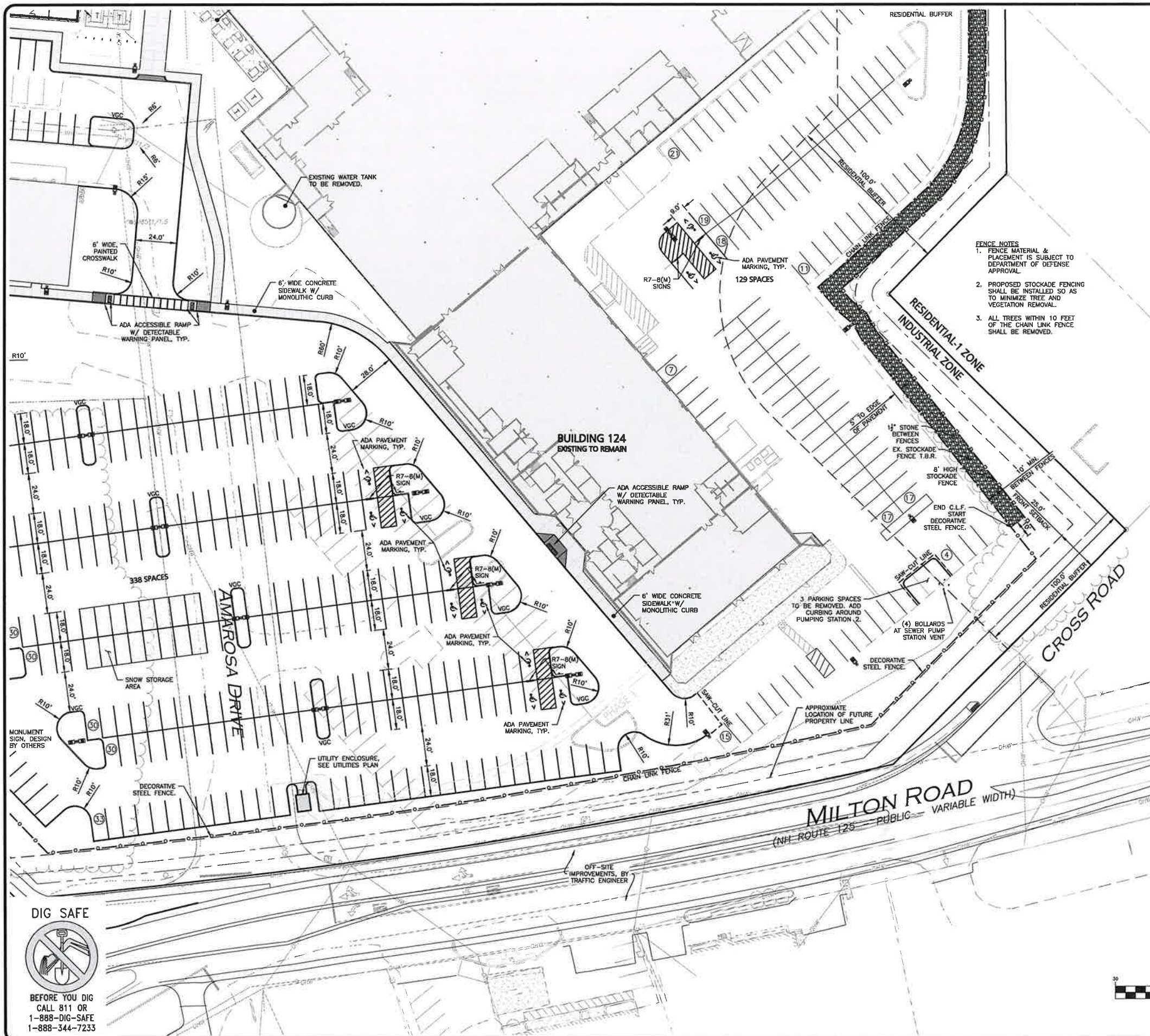
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DRAWING TITLE:
LAYOUT & MATERIALS PLAN

SHEET No.
C-102C

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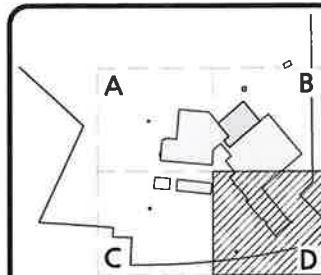
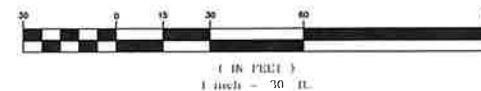


LEGEND	
PROPERTY LINE	
SIGN	
BOLLARD	
BUILDING	
BUILDING SETBACK LINE	
LANDSCAPE BUFFER LINE	
PARKING COUNT	10
SIDEWALK	
CURB	
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GRAPHIC SCALE



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

1	09-25-23	REVISED PER COMMENTS
REV	DATE	DESCRIPTION

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DRAWING TITLE:	SHEET No.
LAYOUT & MATERIALS PLAN	C-102D

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TEST PIT #1 (TP1) EXISTING GROUND ELEVATION: 247.0 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-18"	LOAMY SAND	-	-	DRY
C ₁	18-60"	MEDIUM SAND	10YR 6/4	SINGLE GRAIN, LOOSE	DRY
C ₂	60-125"	FINE SAND	10YR 6/8	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 114" (ELEVATION=237.5) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #2 (TP2) EXISTING GROUND ELEVATION: 248.0 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
A	0-6"	LOAMY SAND	10YR 3/3	MASSIVE, FRIABLE	DRY
B _w	6-15"	LOAMY SAND	10YR 5/8	MASSIVE, FRIABLE	DRY
C ₁	15-84"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C ₂	84-130"	FINE SAND	10YR 7/2	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 118" (ELEVATION=238.2) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #3 (TP3) EXISTING GROUND ELEVATION: 244.0 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-10"	LOAMY SAND	-	-	DRY
C ₁	10-60"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C ₂	60-124"	FINE SAND	10YR 6/3	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 76" (ELEVATION=237.7) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #4 (TP4) EXISTING GROUND ELEVATION: 245.0 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
A	0-6"	LOAMY SAND	10YR 3/2	MASSIVE, FRIABLE	DRY
B _w	6-10"	LOAMY SAND	10YR 4/4	MASSIVE, FRIABLE	DRY
C ₁	10-60"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C ₂	60-120"	FINE SAND	10YR 6/3	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 78" (ELEVATION=238.5) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #5 (TP5) EXISTING GROUND ELEVATION: 244.9 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (TOPSOIL)	0-8"	LOAMY SAND	10YR 3/2	MASSIVE, FRIABLE	DRY
C ₁	8-84"	MEDIUM SAND	10YR 5/8	SINGLE GRAIN, LOOSE	DRY
C ₂	84-108"	FINE SAND	10YR 6/3	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 80" (ELEVATION=238.3) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #6 (TP6) EXISTING GROUND ELEVATION: 246.1 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (TOPSOIL)	0-8"	LOAMY SAND	10YR 3/2	MASSIVE, FRIABLE	DRY
C ₁	8-60"	MEDIUM SAND	10YR 5/8	SINGLE GRAIN, LOOSE	DRY
C ₂	60-120"	FINE SAND	10YR 6/3	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 86" (ELEVATION=238.9) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #7 (TP7) EXISTING GROUND ELEVATION: 246.7 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
A	0-8"	LOAMY SAND	10YR 3/3	MASSIVE, FRIABLE	DRY
B _w	8-15"	LOAMY SAND	10YR 5/8	MASSIVE, FRIABLE	DRY
C ₁	15-50"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C ₂	50-132"	FINE SAND	10YR 7/2	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 120" (ELEVATION=236.7) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #8 (TP8) EXISTING GROUND ELEVATION: 243.0 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
A	0-6"	LOAMY SAND	10YR 3/3	MASSIVE, FRIABLE	DRY
B _w	6-10"	LOAMY SAND	10YR 4/4	MASSIVE, FRIABLE	DRY
C ₁	10-50"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C ₂	50-120"	FINE SAND	10YR 7/2	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 90" (ELEVATION=235.5) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #9 (TP9) EXISTING GROUND ELEVATION: 243.0 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-15"	-	-	-	DRY
C ₁	15-60"	MEDIUM SAND	10YR 5/6	SINGLE GRAIN, LOOSE	DRY
C ₂	60-120"	FINE SAND	10YR 7/2	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 96" (ELEVATION=235.0) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #10 (TP10) EXISTING GROUND ELEVATION: 241.0 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-18"	-	-	-	DRY
C ₁	18-100"	MEDIUM SAND	10YR 5/6	SINGLE GRAIN, LOOSE	DRY
C ₂	100-110"	FINE SAND	10YR 6/2	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 67" (ELEVATION=235.4) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #11 (TP11) EXISTING GROUND ELEVATION: 245.6 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-24"	-	-	-	DRY
C ₁	24-80"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C ₂	80-130"	FINE SAND	10YR 6/2	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 120" (ELEVATION=235.6) WEEP: NONE BEDROCK/REFUSAL: NONE					

TEST PIT #12 (TP12) EXISTING GROUND ELEVATION: 246.0 PERFORMED BY: BRIAN D. JONES, PE DATE: 02-14-2023					
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-18"	-	-	-	DRY
C ₁	18-84"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C ₂	84-124"	FINE SAND	10YR 6/2	MASSIVE FRIABLE	DRY TO MOIST
ESHW: 112" (ELEVATION=236.7) WEEP: NONE BEDROCK/REFUSAL: NONE					



LEGEND

DRAIN MANHOLE

OUTLET CONTROL (BEEHIVE)

CATCH BASIN

CATCH BASIN (30" NYLOPLAST)

AREA DRAIN

FLARED END SECTION

DRAIN LINE

RIPRAP OUTFALL

HEADWALL

5' CONTOUR

1' CONTOUR

SPOT GRADE

INFILTRATION SYSTEM

INFILTRATION CHAMBER

ISOLATION ROW

FLOW DIRECTION

PHASE 1 LINE

AREAS OF CUT

AREAS OF FILL

X 470.00

- NOTES**
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2. VERTICAL DATUM IS NAVD83. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.

3. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.

4. PIPE DIMENSIONS ARE MEASURED FROM THE CENTER OF THE STRUCTURE.

5. ROOF DRAIN LOCATIONS TO BE BASED ON FINAL BUILDING PLANS. CONNECTION POINTS SHALL BE AS SHOWN HEREON.

6. SPOT GRADES ALONG CURBING, SHOWN ON THE FOLLOWING SHEETS (C-103A THROUGH C-103D), REPRESENT BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.

7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.

8. ALL STORM DRAIN MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT AND SHALL HAVE TRAFFIC BEARING RING & COVERS, H-20 MINIMUM.

9. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

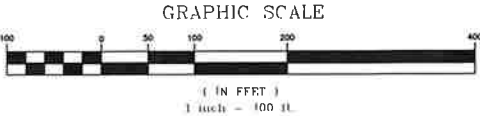
10. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ENSURE A SMOOTH FIT AND CONTINUOUS GRADE.

11. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.

12. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.

13. THE OWNER SHALL BE RESPONSIBLE TO MAINTAIN COMPLIANCE WITH Env-Wq 401, BEST MANAGEMENT PRACTICES FOR GROUNDWATER PROTECTION WITH RESPECT TO ALL REGULATED SUBSTANCES FOUND ON SITE.

14. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.



STATE OF NEW HAMPSHIRE

BRIAN D. JONES

No. 12009

PROFESSIONAL ENGINEER

11.03.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

2	09-25-23	REVISED PER COMMENTS
1	09-05-23	ISSUED FOR AOT
REV	DATE	DESCRIPTION

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE	07-25-23
SCALE:	1" = 100'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying environmental consulting • landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

WOBBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

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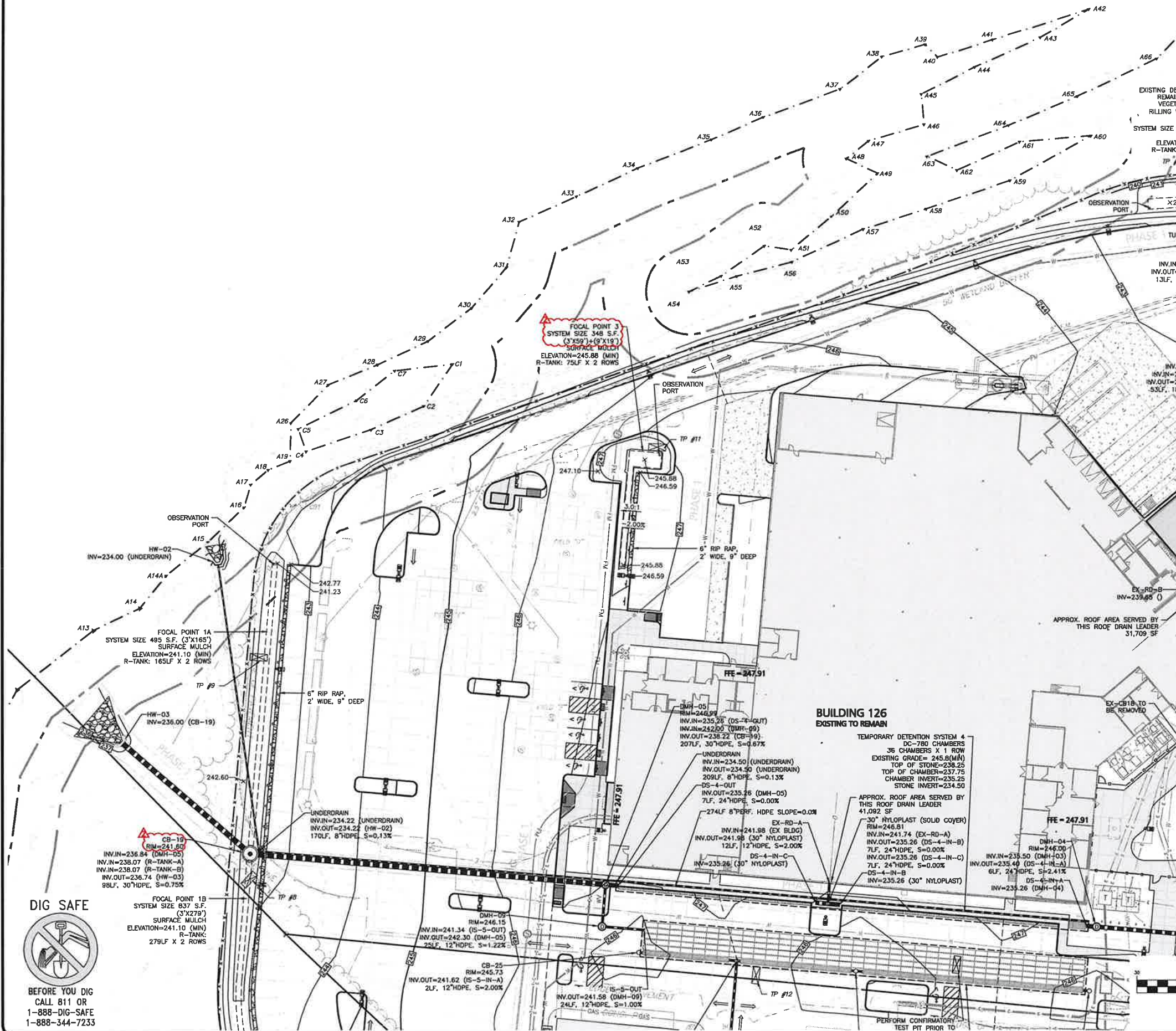
DRAWING TITLE: OVERALL GRADING & DRAINAGE PLAN	SHEET NO. C-103
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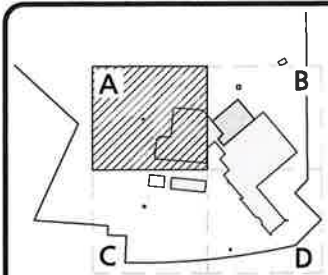
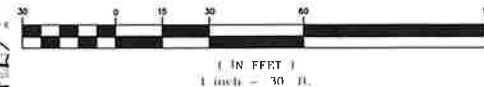
LEGEND

DRAIN MANHOLE	
OUTLET CONTROL (BEEHIVE)	
CATCH BASIN	
CATCH BASIN (30" NYLOPLAST)	
AREA DRAIN	
FLARED END SECTION	
DRAIN LINE	
RIPRAP OUTFALL	
HEADWALL	
5' CONTOUR	
1' CONTOUR	
SPOT GRADE	
INFILTRATION SYSTEM	
INFILTRATION CHAMBER	
ISOLATION ROW	
FLOW DIRECTION	
PHASE 1 LINE	

NOTES

- EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER, NH, FOR SIG SAUER INC., DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
- VERTICAL DATUM IS NAVD83. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
- ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
- PIPE DIMENSIONS ARE MEASURED FROM THE CENTER OF THE STRUCTURE.
- ROOF DRAIN LOCATIONS TO BE BASED ON FINAL BUILDING PLANS. CONNECTION POINTS SHALL BE AS SHOWN HEREON.
- SPOT GRADES ALONG CURBING, SHOWN ON THE FOLLOWING SHEETS (C-103A THROUGH C-103D), REPRESENT BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
- IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
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GRAPHIC SCALE



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	11-03-23	REVISED PER AOT COMMENTS
1	09-05-23	ISSUED FOR AOT

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

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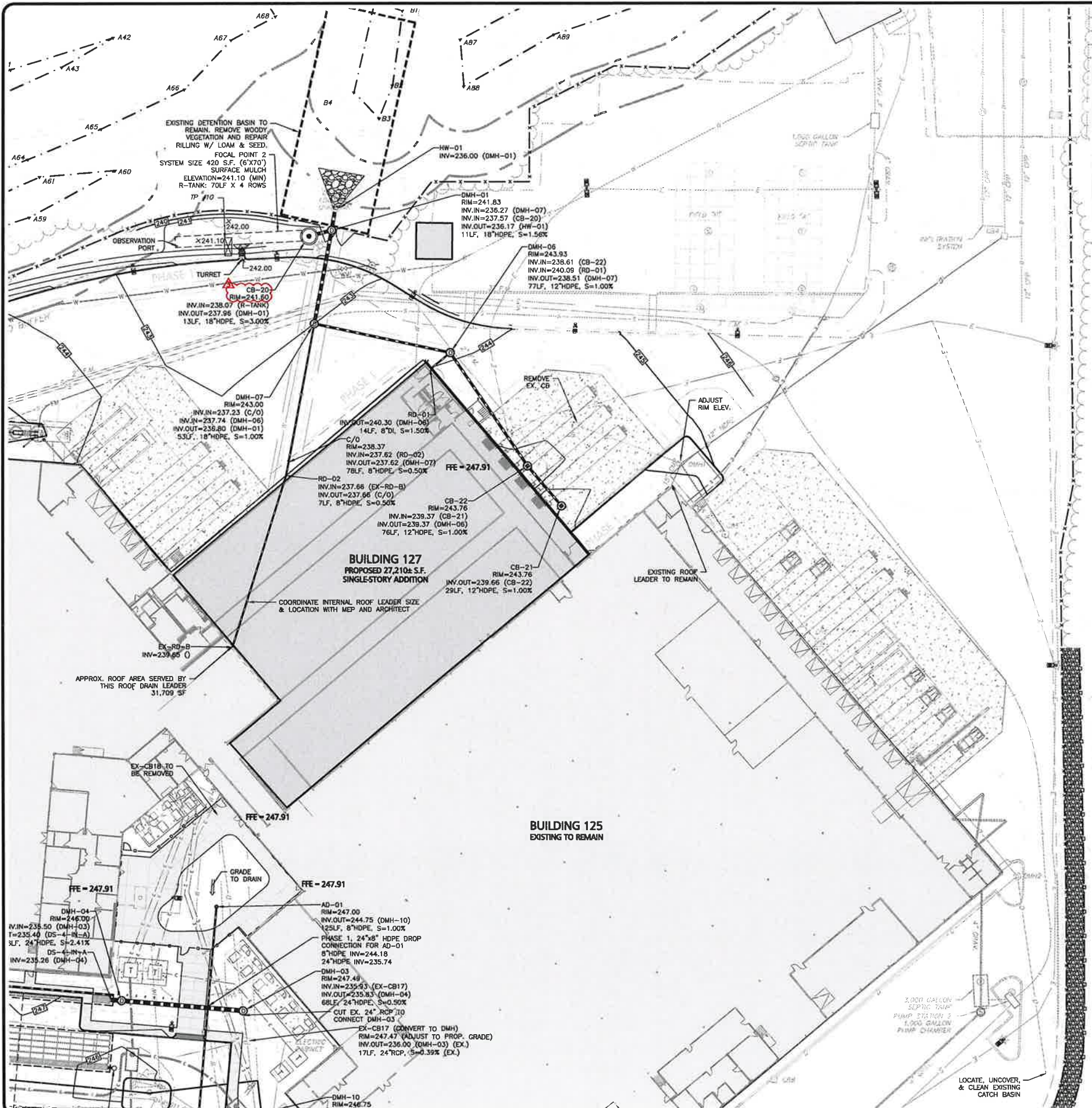
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DRAWING TITLE:	SHEET No.
GRADING & DRAINAGE PLAN	C-103A

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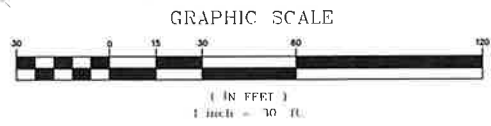
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LEGEND

DRAIN MANHOLE	⊙
OUTLET CONTROL (BEEHIVE)	⊙
CATCH BASIN	⊙
CATCH BASIN (30" NYLOPLAST)	○
AREA DRAIN	•
FLARED END SECTION	△
DRAIN LINE	—
RIPRAP OUTFALL	▨
HEADWALL	▤
5' CONTOUR	45.5
1' CONTOUR	45.0
SPOT GRADE	x 470.00
INFILTRATION SYSTEM	▨
INFILTRATION CHAMBER	▨
ISOLATION ROW	▨
FLOW DIRECTION	⇒
PHASE 1 LINE	—

- NOTES**
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SHEET KEY PLAN

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

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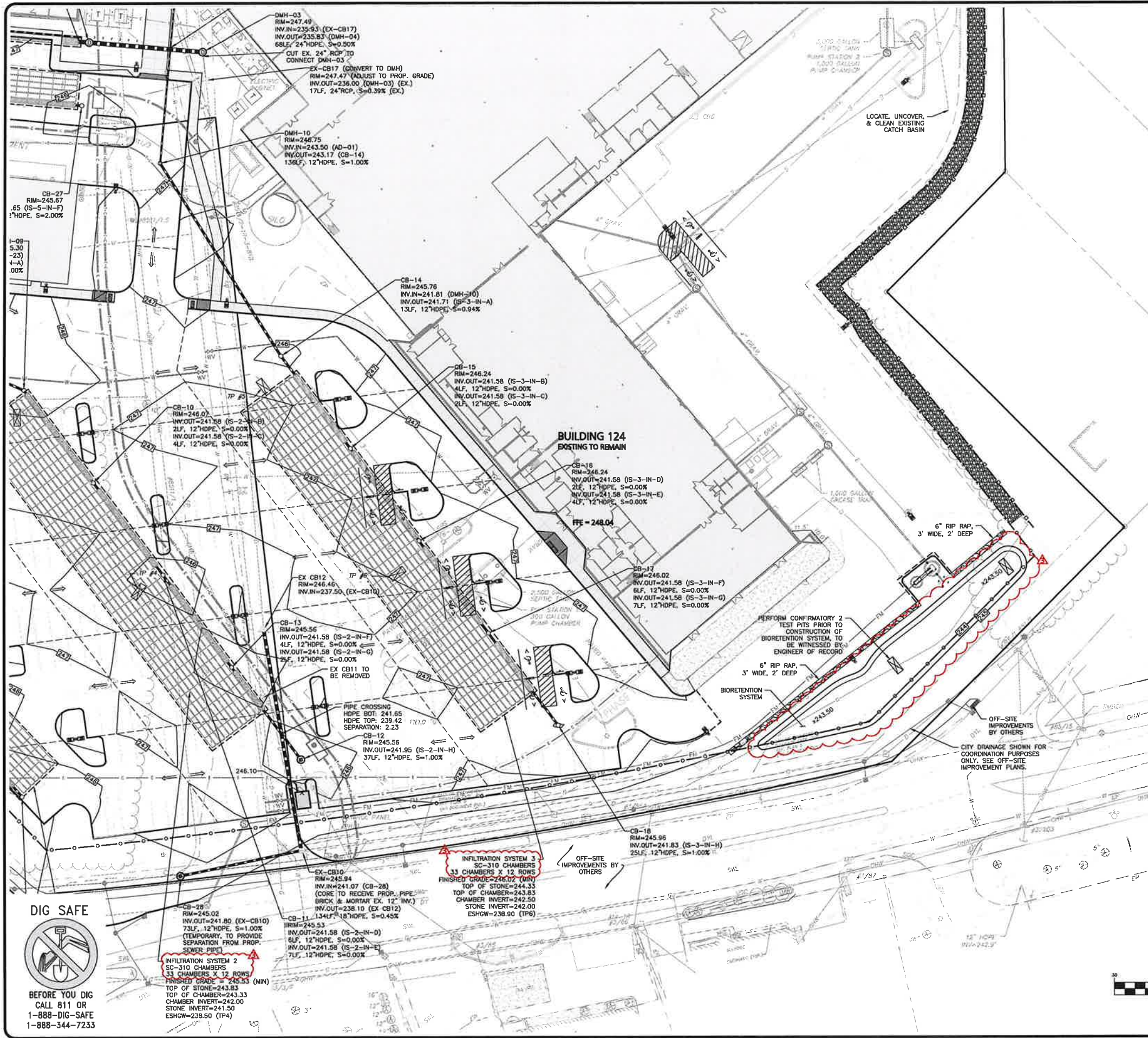
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DRAWING TITLE:	SHEET No.
GRADING & DRAINAGE PLAN	C-103B

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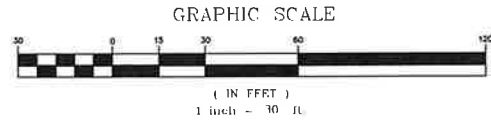
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LEGEND

- DRAIN MANHOLE
- OUTLET CONTROL (BEEHIVE)
- CATCH BASIN
- CATCH BASIN (30" NYLOPLAST)
- AREA DRAIN
- FLARED END SECTION
- DRAIN LINE
- RIPRAP OUTFALL
- HEADWALL
- 5' CONTOUR
- 1' CONTOUR
- SPOT GRADE
- INFILTRATION SYSTEM
- INFILTRATION CHAMBER
- ISOLATION ROW
- FLOW DIRECTION
- PHASE 1 LINE

- NOTES**
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SHEET KEY PLAN

A B C D

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV

REV	DATE	DESCRIPTION
1	09-05-23	ISSUED FOR AOT
2	09-25-23	REVISED PER COMMENTS
3	11-03-23	REVISED PER AOT COMMENTS

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A **DATE:** 07-25-23

SCALE: 1" = 30' **DWG. NAME:** C2912-01A

DESIGNED BY: SM **CHECKED BY:** BDJ

PREPARED BY:

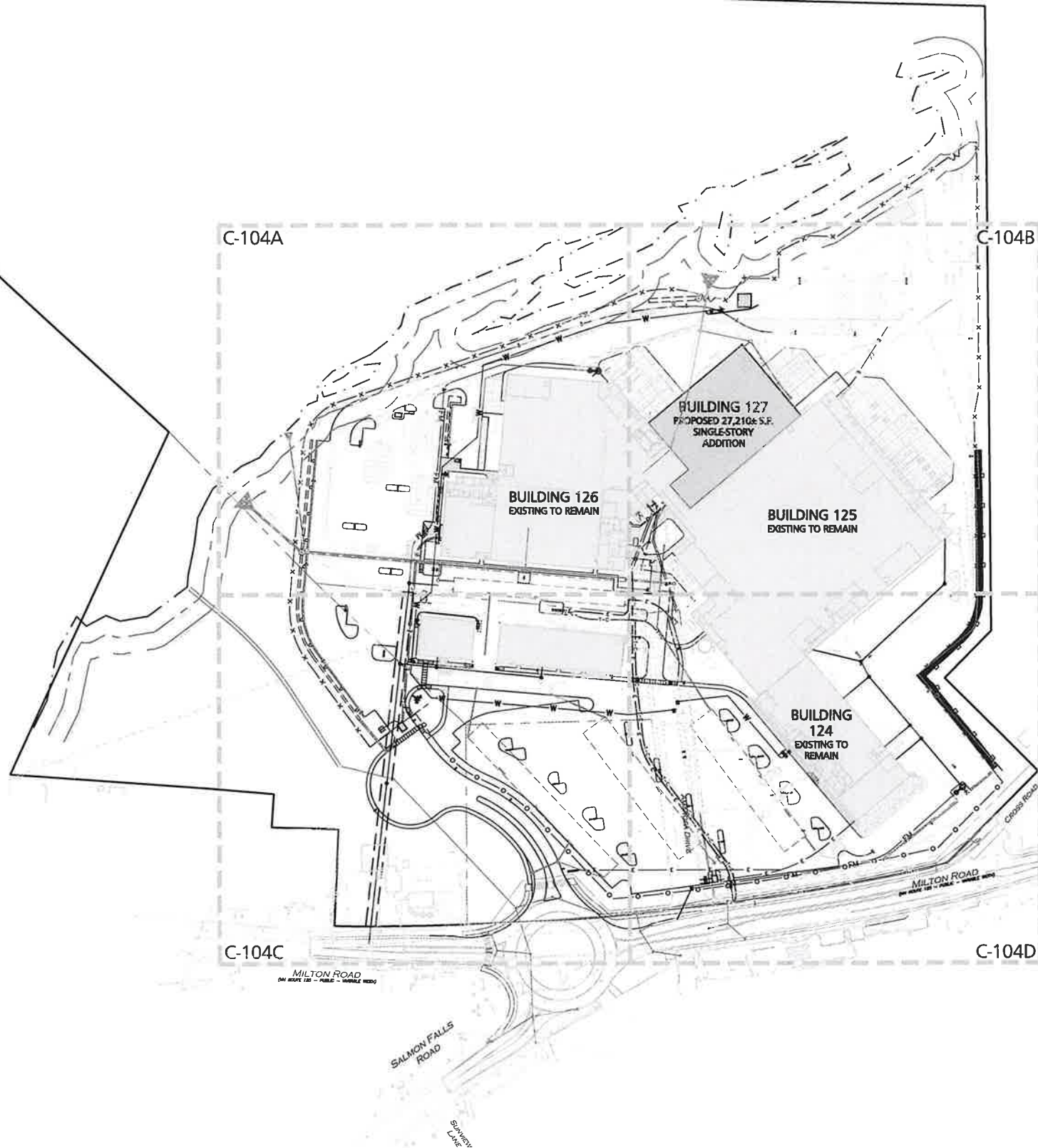
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DRAWING TITLE: GRADING & DRAINAGE PLAN **SHEET NO.** C-103D

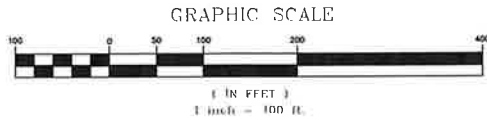
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LEGEND	
SEWER MANHOLE	
SEWER CLEANOUT	
SEWER VENT	
SEWER LINE	
SEWER FORCEMAIN	
CONCRETE PIPE ENCASEMENT	
WATER LINE	
WATER VALVE	
HYDRANT	
WATER LINE REDUCER	
GAS LINE	
GAS VALVE	
SEPTIC/HOLDING TANK	
GREASE TRAP	
OVER HEAD WIRE	
UTILITY POLE	
ELECTRIC MANHOLE	
ELECTRICAL CONDUIT	
TELE/CABLE CONDUIT	
PHASE 1 LINE	

NOTES

1. THE PURPOSE OF THIS PLAN IS TO PROVIDE OVERALL UTILITIES INFORMATION FOR THE PROPOSED BUILDING ADDITIONS AND ASSOCIATED SITE IMPROVEMENTS. SEE SHEETS C-104A THROUGH C-104D FOR 1"=30' SCALE ENLARGEMENTS.
2. ON-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. "EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER, NH, FOR SIG SAUER INC.", DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
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4. VERTICAL DATUM IS NAVD83. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
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REV	DATE	DESCRIPTION

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
**PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868**

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 100'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ



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DRAWING TITLE: OVERALL UTILITIES PLAN	SHEET No. C-104
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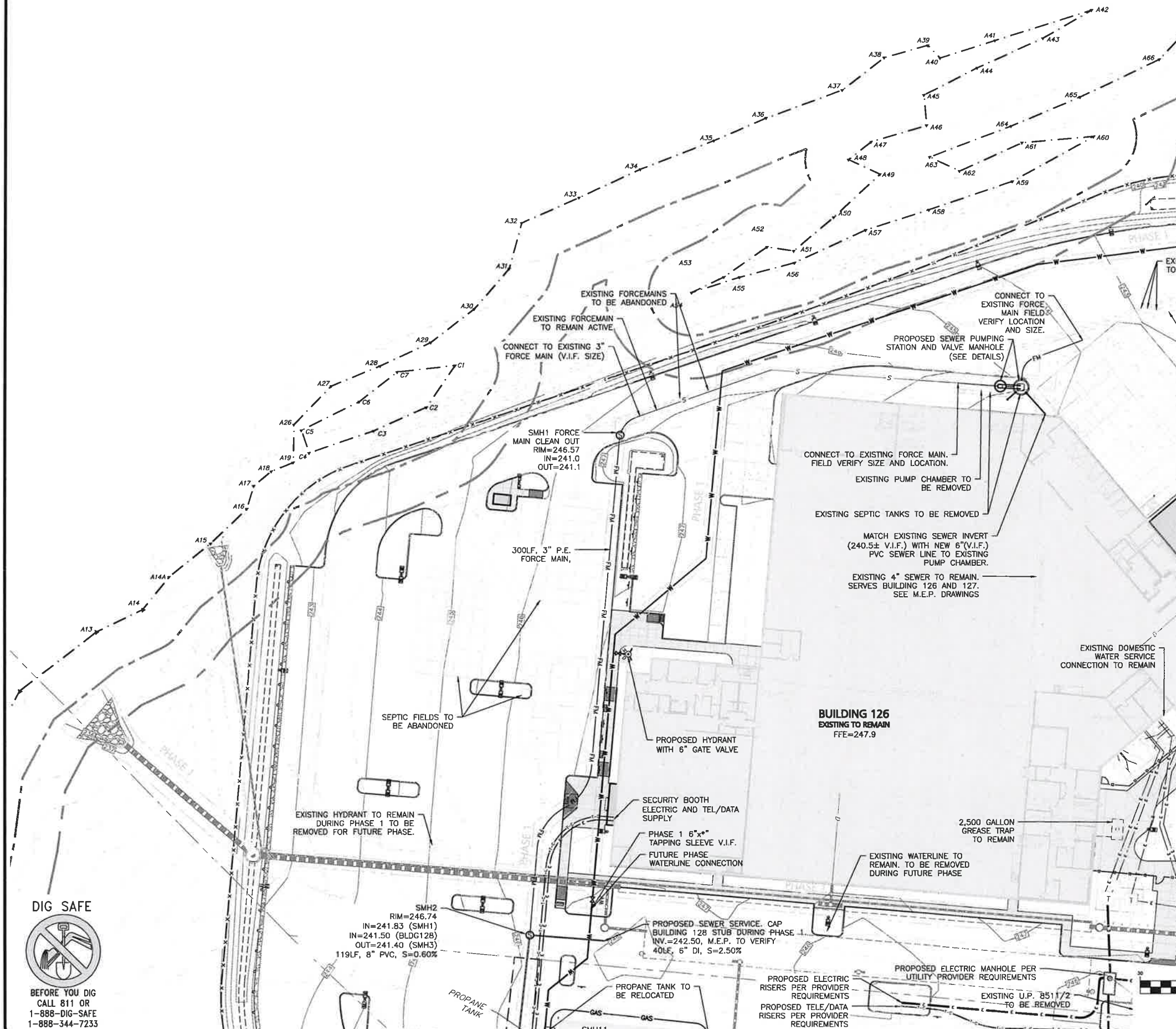
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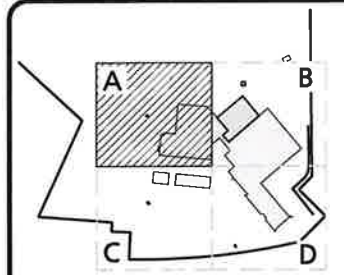
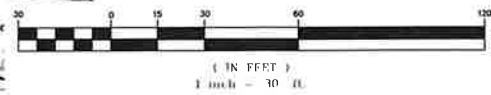
LEGEND

SEWER MANHOLE	⊙
SEWER CLEANOUT	⊙
SEWER VENT	⊙
SEWER LINE	—
SEWER FORCEMAIN	FM
CONCRETE PIPE ENCASUREMENT	—
WATER LINE	W
WATER VALVE	WV
HYDRANT	⊙
WATER LINE REDUCER	—
GAS LINE	—
GAS VALVE	GV
SEPTIC/HOLDING TANK	⊙
GREASE TRAP	⊙
OVER HEAD WIRE	—
UTILITY POLE	⊙
ELECTRIC MANHOLE	⊙
ELECTRICAL CONDUIT	—
TELE/CABLE CONDUIT	—
PHASE 1 LINE	—

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GRAPHIC SCALE



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	09-05-23	ISSUED FOR A&T

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
**PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868**

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying environmental consulting • landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

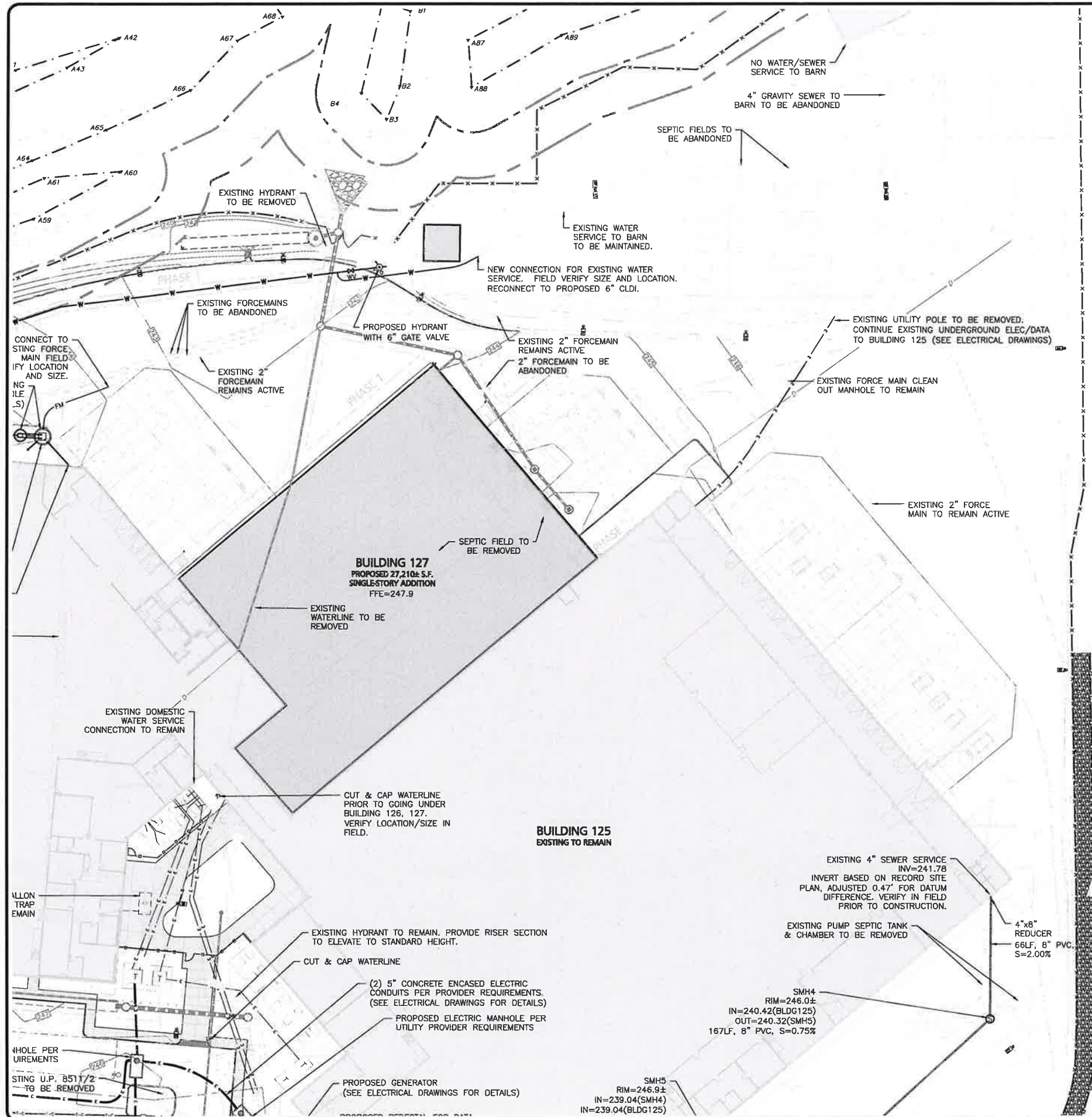
WOBURN, MA • LAKEVILLE, MA • MANCHESTER, NH

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DRAWING TITLE:	SHEET No.
UTILITIES PLAN	C-104A

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R:\PROJECTS\2912-01\CIVIL DRAWINGS\CURRENT\C-2912-01 UTILITIES.DWG



LEGEND

SEWER MANHOLE	⊙
SEWER CLEANOUT	⊙
SEWER VENT	⊙
SEWER LINE	---
SEWER FORCEMAIN	FM
CONCRETE PIPE ENCASMENT	---
WATER LINE	W
WATER VALVE	WV
HYDRANT	⊙
WATER LINE REDUCER	---
GAS LINE	GAS
GAS VALVE	GV
SEPTIC/HOLDING TANK	⊙
GREASE TRAP	⊙
OVER HEAD WIRE	OHW
UTILITY POLE	⊙
ELECTRIC MANHOLE	⊙
ELECTRICAL CONDUIT	---
TELE/CABLE CONDUIT	---
PHASE 1 LINE	---

NOTES

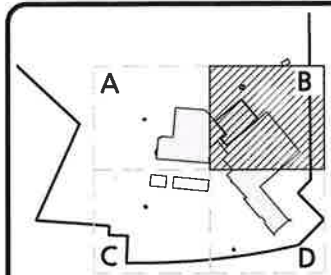
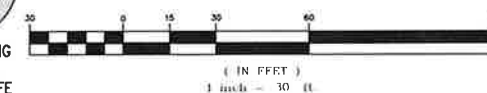
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- VERTICAL DATUM IS NAVD88. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
- PIPE DIMENSIONS ARE MEASURED FROM THE INSIDE EDGE OF THE STRUCTURE.
- IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
- ALL SEWER MANHOLE COVERS IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT AND SHALL HAVE TRAFFIC BEARING RING & COVERS, H-20 MINIMUM.
- ALL UTILITIES SHALL CONFORM TO LOCAL REQUIREMENTS.
- THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

DIG SAFE



BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

GRAPHIC SCALE



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:



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WOBURN, MA • LISKEVILLE, MA • MANCHESTER, NH

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DRAWING TITLE:

UTILITIES PLAN

SHEET No.

C-104B

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1-888-DIG-SAFE
1-888-344-7233

EXISTING GAS SERVICE TO BE ABANDONED. CUT
AND CAP AT MAIN PER PROVIDER REQUIREMENTS

EXISTING SMH1046
RIM=244.8
IN=236.8(CORE NEW OPENING FOR 8" PVC)
IN=236.7(SMH1314, 12" PVC)
OUT=236.7(SMH1033, 12" PVC)
RESHAPE BRICK SHELVE AS NEEDED

PROPOSED SECURITY BOOTH GENERATOR.
(SEE ELECTRICAL DRAWINGS FOR DETAILS)

SMH3
RIM=247.69
IN=239.51 (SMH12)
OUT=239.41 (EXISTING SMH)
24" LF, 8" PVC, S=1.08%

SMH12
RIM=245.57
IN=240.68 (SMH2)
IN=240.68 (SMH11)
OUT=240.58 (SMH3)
177' LF, 8" PVC, S=0.60%

SMH2
RIM=246.74
IN=241.83 (SMH1)
IN=241.50 (BLDG128)
OUT=241.40 (SMH3)
119' LF, 8" PVC, S=0.60%

SMH11
RIM=245.98
IN=241.29 (SMH10)
IN=241.29 (BLDG)
OUT=241.19 (SMH12)
51' LF, 8" PVC, S=1.00%
EX. BLDG SERVICE
INV=243.0± (ASSUMED)
VERIFY IN FIELD. NOTIFY
ENGINEER OF RECORD TO
CONFIRM VIABILITY

PROPOSED SEWER SERVICE. CAP
BUILDING 128 STUB DURING PHASE 1.
INV.=242.50, M.E.P. TO VERIFY
40' LF, 6" DI, S=2.50%

PROPOSED ELECTRIC
RISERS PER PROVIDER
REQUIREMENTS
PROPOSED TELE/DATA
RISERS PER PROVIDER
REQUIREMENTS

EX. BLDG SERVICE
INV=243.0± (ASSUMED)
VERIFY IN FIELD. NOTIFY
ENGINEER OF RECORD TO
CONFIRM VIABILITY

PROPOSED ELECTRIC MANHOLE PER
UTILITY PROVIDER REQUIREMENTS

PROPOSED PEDESTAL FOR DATA
(SEE ELECTRICAL DRAWINGS FOR DETAILS)

SMH10
RIM=245.73
IN=242.94 (BLDG)
OUT=242.84 (SMH11)
155' LF, 8" PVC, S=1.00%

EXISTING GAS
SERVICE TO REMAIN
EXISTING WATER
SERVICE TO REMAIN

FFE=246.46

SEPTIC TANK TO BE
REMOVED OR FILLED
WITH FLOWABLE FILL

SEPTIC FIELD TO
BE ABANDONED

SEPTIC TANK TO BE REMOVED
OR FILLED WITH FLOWABLE FILL

SEPTIC FIELD TO
BE ABANDONED

8" CLDI

6"x12" TAPPI
SLEEVE V.
8"x12" TAPP
SLEEVE V.

CUT

NOTES

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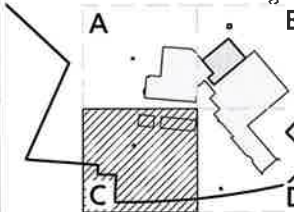
POLE TO BE RELOCATED
AS DETERMINED BY THE
FINAL ROUNDABOUT
PROJECT DESIGN PLANS

GRAPHIC SCALE



LEGEND

SEWER MANHOLE	⊙
SEWER CLEANOUT	⊙
SEWER VENT	⊙
SEWER LINE	—
SEWER FORCEMAIN	— FM —
CONCRETE PIPE ENCASUREMENT	—
WATER LINE	— W —
WATER VALVE	WV
HYDRANT	⊙
WATER LINE REDUCER	—
GAS LINE	— GAS —
GAS VALVE	GV
SEPTIC/HOLDING TANK	⊙
GREASE TRAP	⊙
OVER HEAD WIRE	— OHW —
UTILITY POLE	⊙
ELECTRIC MANHOLE	⊙
ELECTRICAL CONDUIT	— E —
TELE/CABLE CONDUIT	— T —
PHASE 1 LINE	—



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	09-05-23	ISSUED FOR A&M

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23

SCALE: 1" = 30' DWG. NAME: C2912-01A

DESIGNED BY: SM CHECKED BY: BDI

PREPARED BY:

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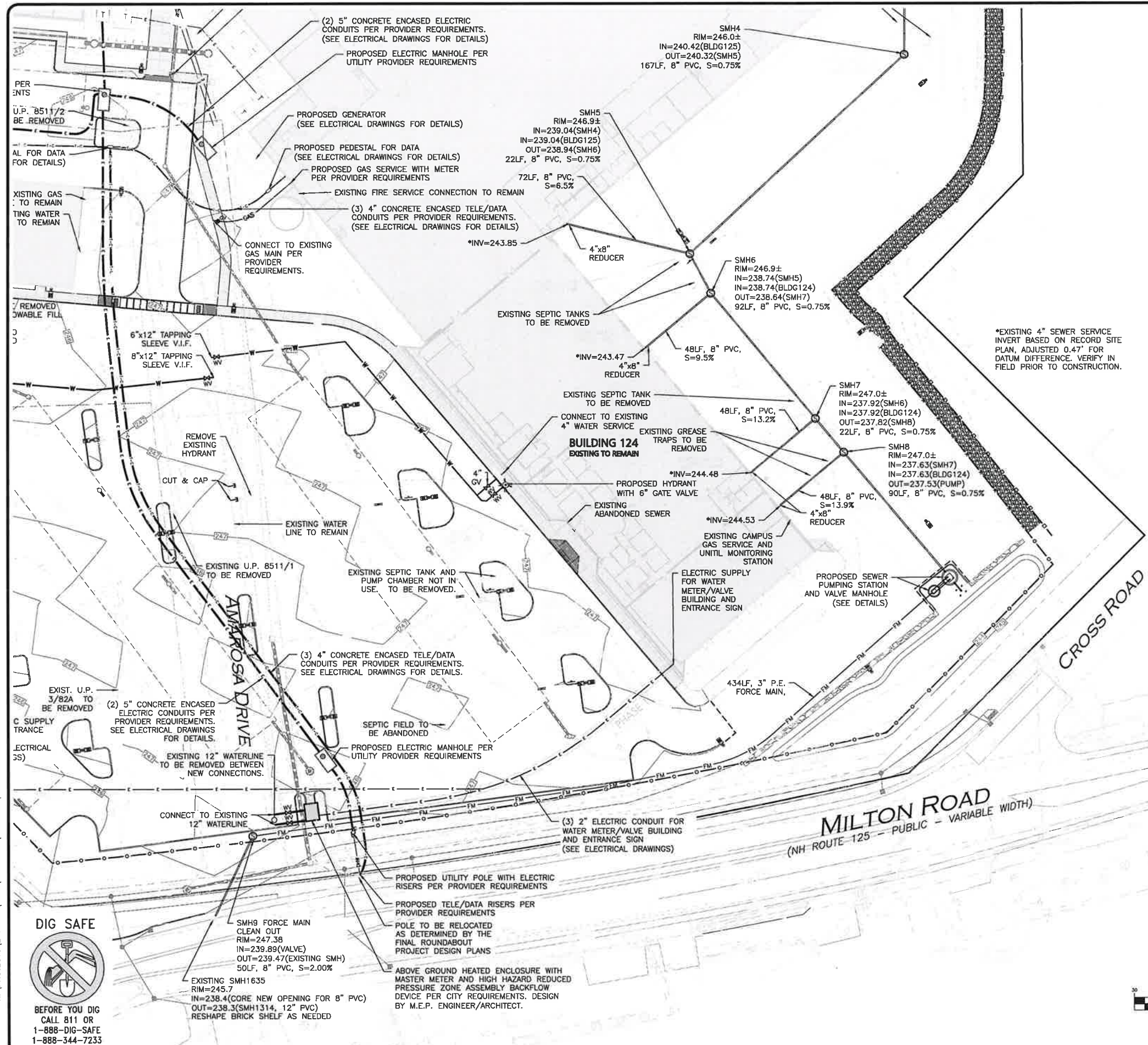
UTILITIES PLAN

SHEET No.

C-104C

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LEGEND

SEWER MANHOLE

SEWER CLEANOUT

SEWER VENT

SEWER LINE

SEWER FORCEMAIN

CONCRETE PIPE ENCASMENT

WATER LINE

WATER VALVE

HYDRANT

WATER LINE REDUCER

GAS LINE

GAS VALVE

SEPTIC/HOLDING TANK

GREASE TRAP

OVER HEAD WIRE

UTILITY POLE

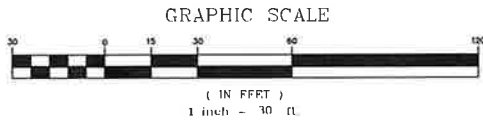
ELECTRIC MANHOLE

ELECTRICAL CONDUIT

TELE/CABLE CONDUIT

PHASE 1 LINE

- NOTES**
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SHEET KEY PLAN

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

11-03-23

REV	DATE	DESCRIPTION
1	09-05-23	ISSUED FOR AOT

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:

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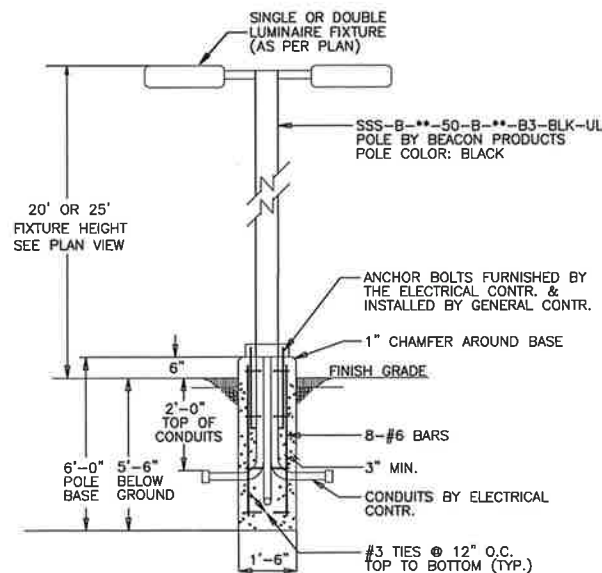
UTILITIES PLAN

SHEET No.









C-104D

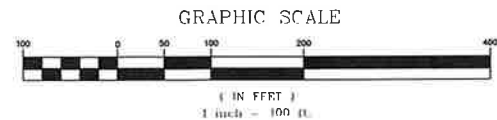
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R:\PROJECTS\2912-01\CIVIL DRAWINGS\CURRENT\C-2912-01 LIGHTING.DWG



POLE LIGHT FIXTURE (LED)
HUBBLE LIGHTING - BEACON VIPER

LUMINAIRE SCHEDULE							
SYMBOL	LABEL	QTY	WATTS	LUMENS	LLF	DESCRIPTION	
	2S4	9	242	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC	
	2S4F	13	242	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC	
	S3	8	120	12247	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-WIRSC	
	S4	16	120	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC	
	S4F	6	120	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC	
	S5	1	120	12235	0.90	VP-ST-1-36L-120-3K7-5QM-UNV-A-BLT-WIRSC	
	S6	2	120	10078	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-BC-WIRSC	
	S7	1	120	10860	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-BC-WIRSC	
CALCULATION SUMMARY							
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE	ILLUMINANCE	Fc	1.02	6.6	0.0	N.A.	N.A.



LEGEND	
SINGLE POLE LIGHT	
DOUBLE POLE LIGHT	
LIGHTING LEVELS (Fc)	0.1 0.2 0.4 0.6
PHASE 1 LINE	

- NOTES**
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
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 - VENDOR INFORMATION:
SWANEY LIGHTING ASSOCIATES
CONTACT: CHRIS PECHALK
PHONE: 207-883-7100
 - LIGHTS WITHIN THE PARKING AREAS AND ACCESS DRIVES SHALL OPERATE ON A PHOTO-CELL & PROGRAMABLE TIMER.
 - CONTROLS FOR ALL EXTERIOR LIGHTING BY BUILDING CONTRACTOR.
 - WIRING OF BUILDING MOUNTED FIXTURES BY BUILDING CONTRACTOR.
 - ALL POLES AND FIXTURE HEADS SHALL BE BLACK COLOR.
 - THE SITE LIGHTING FIXTURES SHOWN HEREON ARE FULL CUT-OFF AND COMPLIANT WITH THE INTERNATIONAL DARK SKY ASSOCIATION.
 - THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

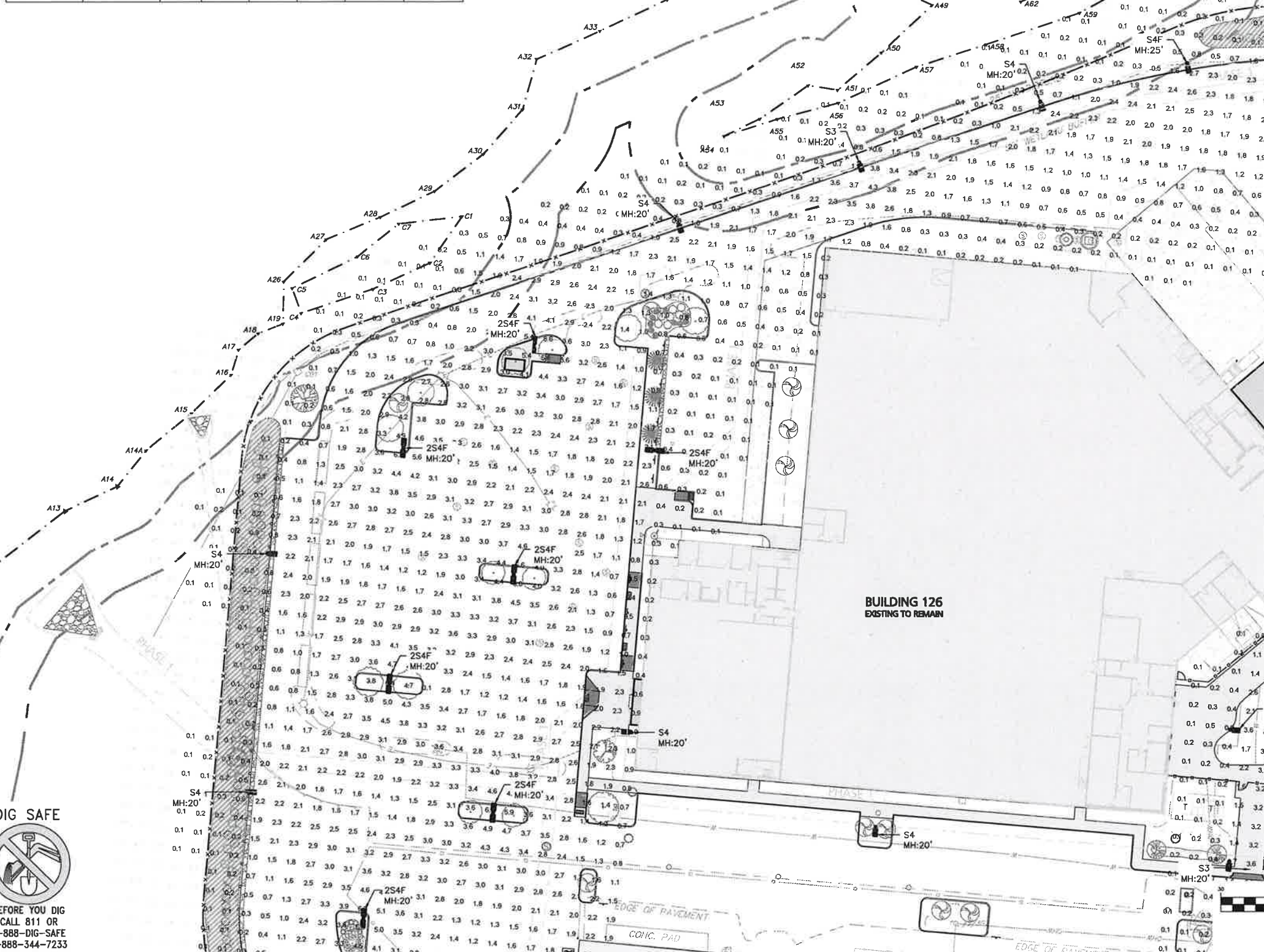
REV	DATE	DESCRIPTION
APPLICANT:		
SIG SAUER REAL ESTATE INC. 72 PEASE BLVD NEWINGTON, NH 03801		
PROJECT:		
PHASE 2 OF MASTER PLAN 7 & 16 AMAROSA DRIVE ROCHESTER, NH 03868		
PROJECT NO.	2912-01A	DATE: 07-25-23
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PREPARED BY:		

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DRAWING TITLE: OVERALL LIGHTING PLAN	SHEET No. C-105
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LUMINAIRE SCHEDULE						
SYMBOL	LABEL	QTY	WATTS	LUMENS	LLF	DESCRIPTION
	2S4	9	242	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC
	2S4F	13	242	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC
	S3	8	120	12247	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-WIRSC
	S4	16	120	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC
	S4F	6	120	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC
	S5	1	120	12235	0.90	VP-ST-1-36L-120-3K7-5QM-UNV-A-BLT-WIRSC
	S6	2	120	10078	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-BC-WIRSC
	S7	1	120	10860	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-BC-WIRSC

CALCULATION SUMMARY						
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN
SITE	ILLUMINANCE	Fc	1.02	6.6	0.0	N.A.



LEGEND

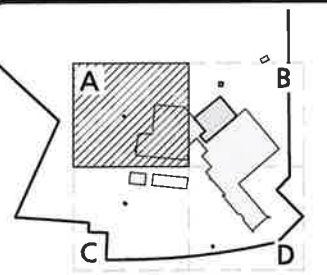
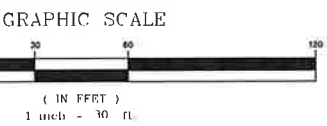
SINGLE POLE LIGHT

DOUBLE POLE LIGHT

LIGHTING LEVELS (Fc) 0.1 0.2 0.4 0.6

PHASE 1 LINE

- NOTES**
1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DISAHEAD" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
 2. ON-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. "EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER, NH, FOR SIG SAUER INC.", DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
 3. OFF-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM DOUCET SURVEY, LLC: "EXISTING CONDITIONS PLAN FOR HOYLE, TANNER, & ASSOCIATES, INC. OF MILTON ROAD (NH ROUTE 125) AND AMAROSA DRIVE INTERSECTION, ROCHESTER, NH" DATED JUNE 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
 4. VENDOR INFORMATION:
SWANEY LIGHTING ASSOCIATES
CONTACT: CHRIS PECHALK
PHONE: 207-883-7100
 5. LIGHTS WITHIN THE PARKING AREAS AND ACCESS DRIVES SHALL OPERATE ON A PHOTO-CELL & PROGRAMMABLE TIMER.
 6. CONTROLS FOR ALL EXTERIOR LIGHTING BY BUILDING CONTRACTOR.
 7. WIRING OF BUILDING MOUNTED FIXTURES BY BUILDING CONTRACTOR.
 8. ALL POLES AND FIXTURE HEADS SHALL BE BLACK COLOR.
 9. THE SITE LIGHTING FIXTURES SHOWN HEREON ARE FULL CUT-OFF AND COMPLIANT WITH THE INTERNATIONAL DARK SKY ASSOCIATION.
 10. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A **DATE:** 07-25-23

SCALE: 1" = 30' **DWG. NAME:** C2912-01A

DESIGNED BY: SM **CHECKED BY:** BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying environmental consulting • landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

DRAWING TITLE: SITE LIGHTING PLAN

SHEET No.: C-105A

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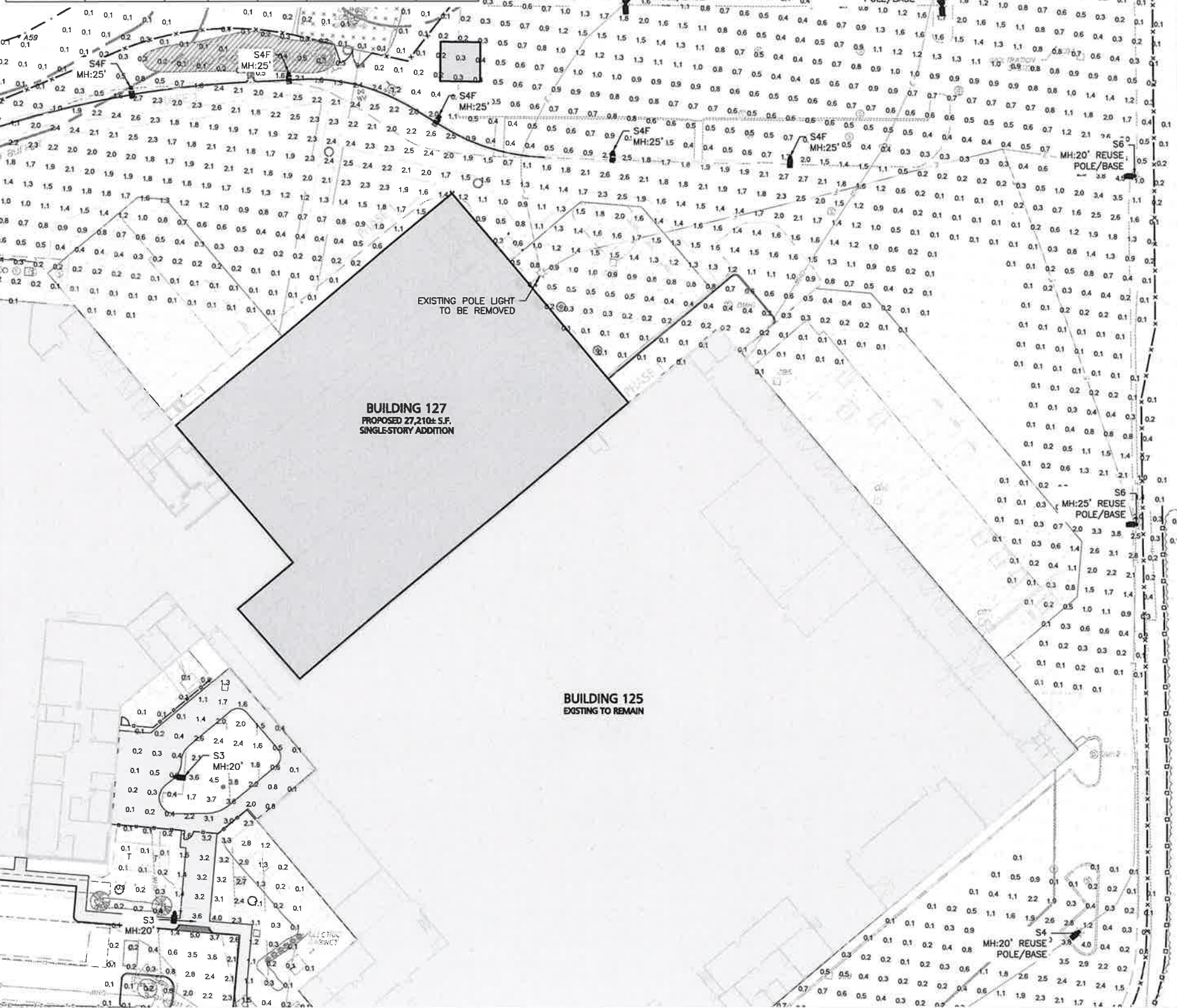
R:\PROJECTS\2912-01\CIVIL DRAWINGS\CURRENT\C-2912-01_LIGHTING.DWG

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1-888-344-7233

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LUMINAIRE SCHEDULE							
SYMBOL	LABEL	QTY	WATTS	LUMENS	LLF	DESCRIPTION	
	2S4	9	242	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC	
	2S4F	13	242	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC	
	S3	8	120	12247	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-WIRSC	
	S4	16	120	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC	
	S4F	6	120	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC	
	S5	1	120	12235	0.90	VP-ST-1-36L-120-3K7-5QM-UNV-A-BLT-WIRSC	
	S6	2	120	10078	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-BC-WIRSC	
	S7	1	120	10860	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-BC-WIRSC	
CALCULATION SUMMARY							
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE	ILLUMINANCE	Fc	1.02	6.6	0.0	N.A.	N.A.



LEGEND

SINGLE POLE LIGHT	
DOUBLE POLE LIGHT	
LIGHTING LEVELS (Fc)	0.1 0.2 0.4 0.6
PHASE 1 LINE	

NOTES

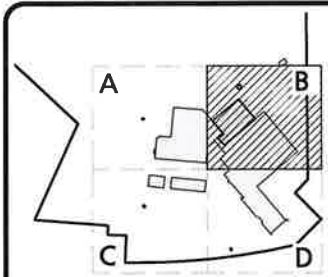
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CONTACT: CHRIS PECHALK
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1-888-344-7233

GRAPHIC SCALE



SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:



**ALLEN & MAJOR
ASSOCIATES, INC.**

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consulting • landscape architecture

www.allenmajor.com

400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

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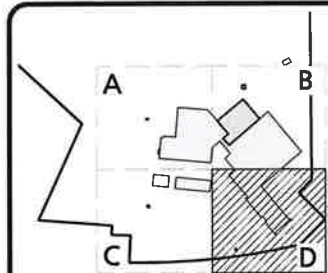
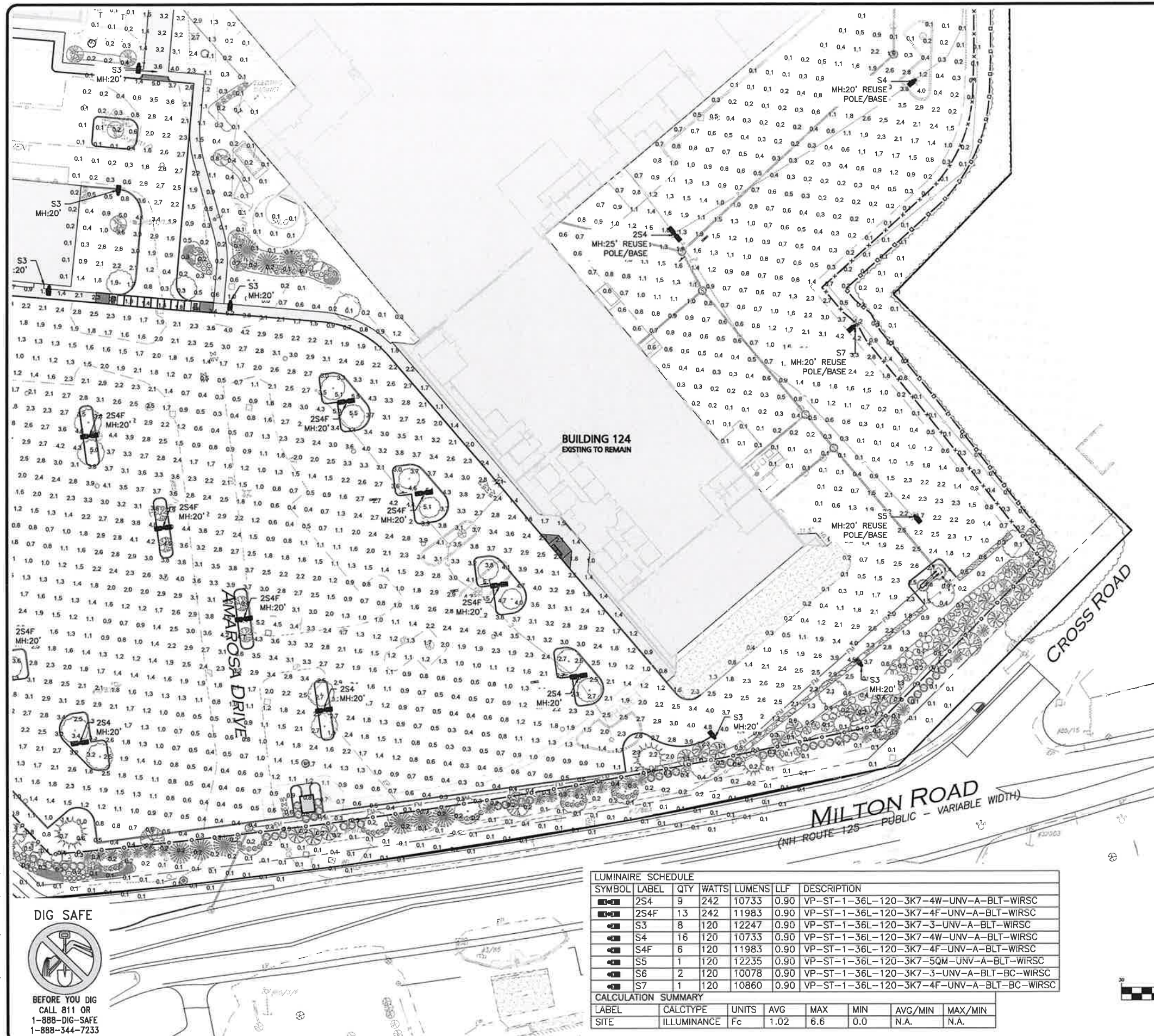
DRAWING TITLE:

SITE LIGHTING PLAN

SHEET No.

C-105B

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SHEET KEY PLAN



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
APPLICANT:		
SIG SAUER REAL ESTATE INC.		
72 PEASE BLVD		
NEWINGTON, NH 03801		
PROJECT:		
PHASE 2 OF MASTER PLAN		
7 & 16 AMAROSA DRIVE		
ROCHESTER, NH 03868		
PROJECT NO.	2912-01A	DATE: 07-25-23
SCALE:	1" = 30'	DWG. NAME: C2912-01A
DESIGNED BY:	SM	CHECKED BY: BDJ



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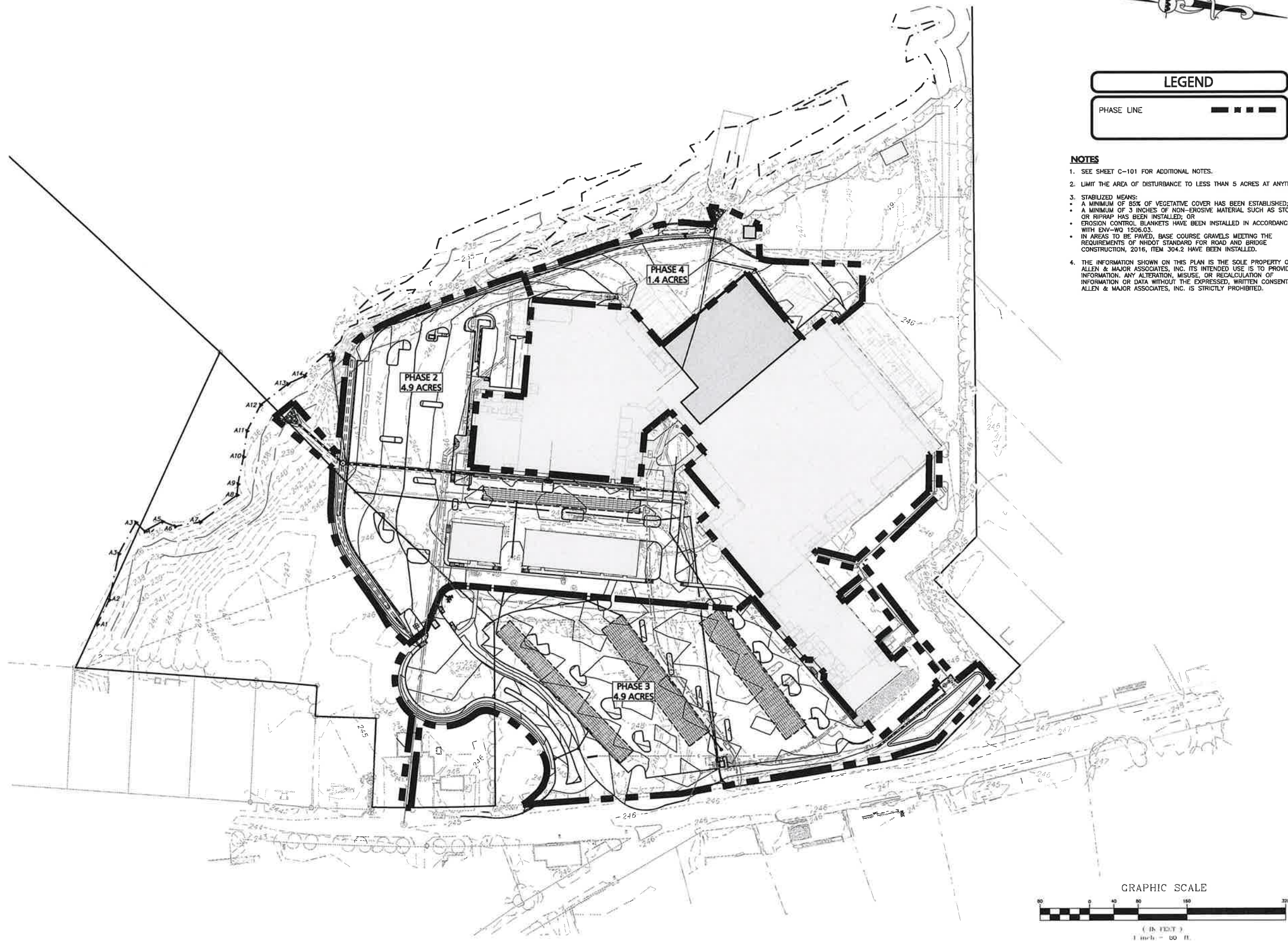
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DRAWING TITLE:	SHEET No.
SITE LIGHTING PLAN	C-105D

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LEGEND

PHASE LINE

NOTES

1. SEE SHEET C-101 FOR ADDITIONAL NOTES.
2. LIMIT THE AREA OF DISTURBANCE TO LESS THAN 5 ACRES AT ANYTIME.
3. STABILIZED MEANS:
 - A MINIMUM OF 85% OF VEGETATIVE COVER HAS BEEN ESTABLISHED;
 - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
 - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED IN ACCORDANCE WITH ENV-WQ 1506.03.
4. IN AREAS TO BE PAVED, BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
4. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEAUSE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 11-03-23

SCALE: 1" = 80' DWG. NAME: C2912-01A

DESIGNED BY: SM CHECKED BY: BDJ

PREPARED BY:



**ALLEN & MAJOR
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www.allenmajor.com

400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
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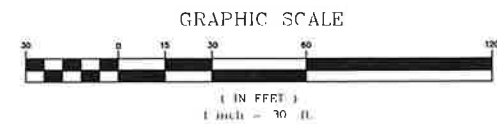
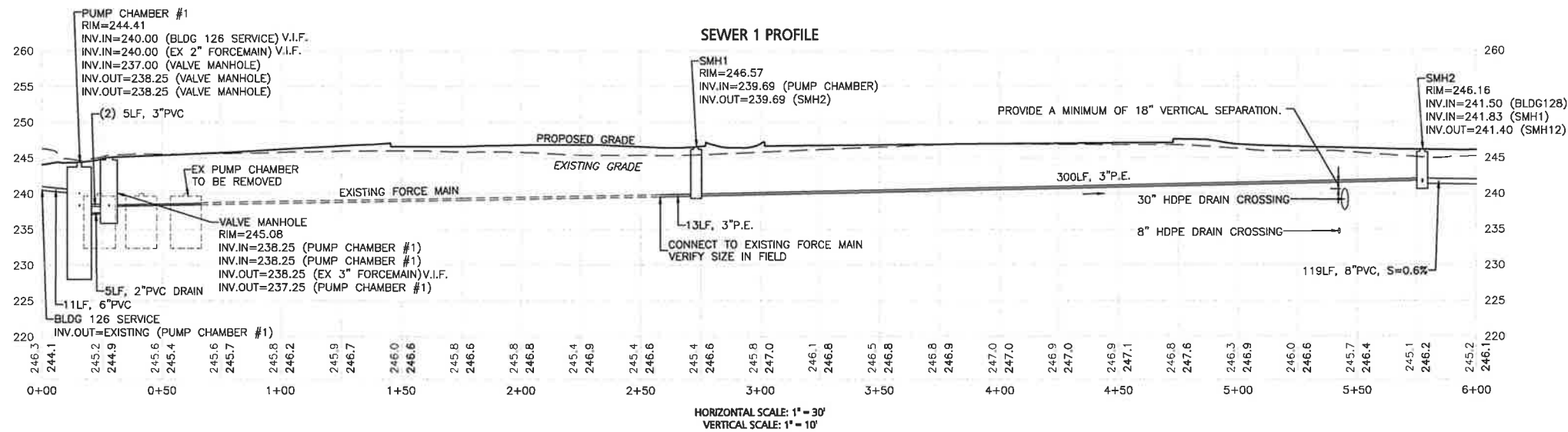
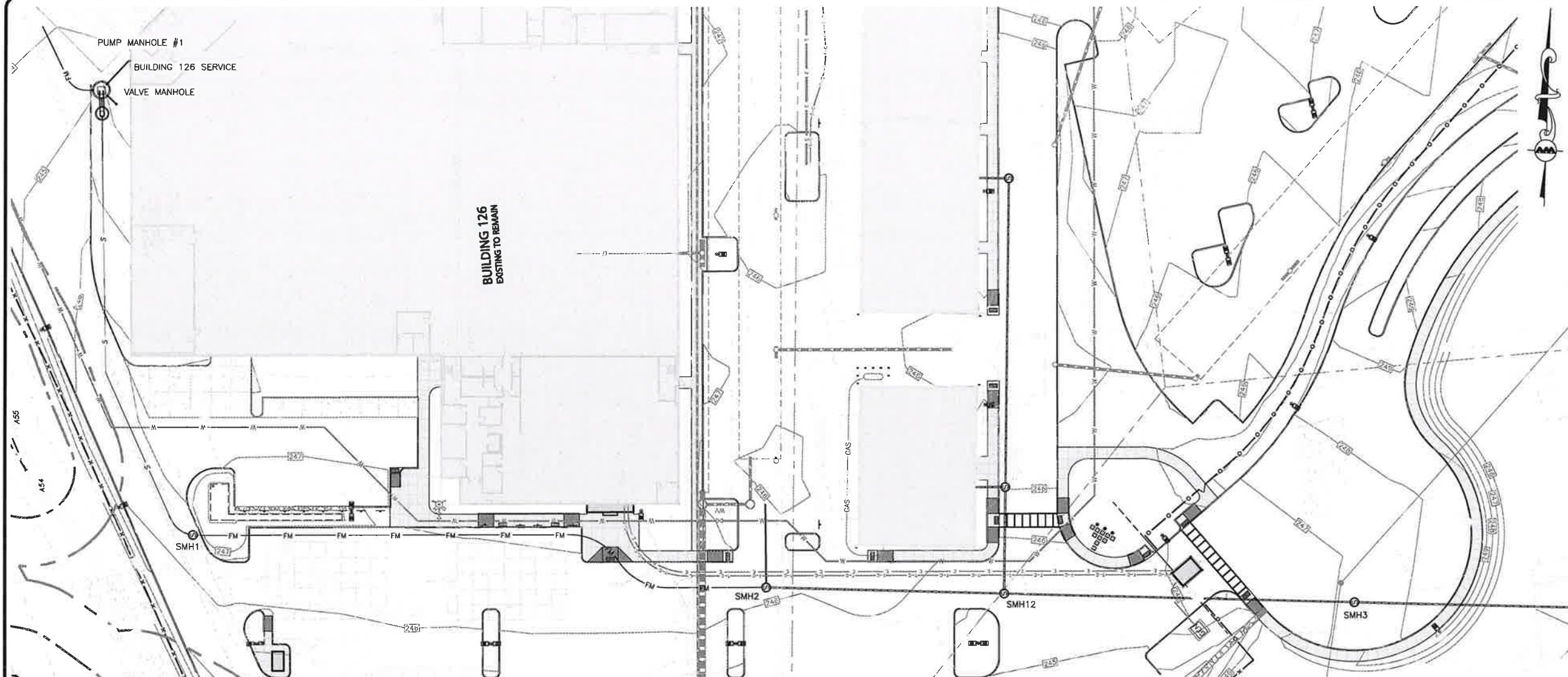
PHASING PLAN

SHEET No.

C-107

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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	09-05-23	ISSUED FOR AOT

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:

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civil engineering • land surveying environmental consulting • landscape architecture
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SEWER PLAN & PROFILE	C-201

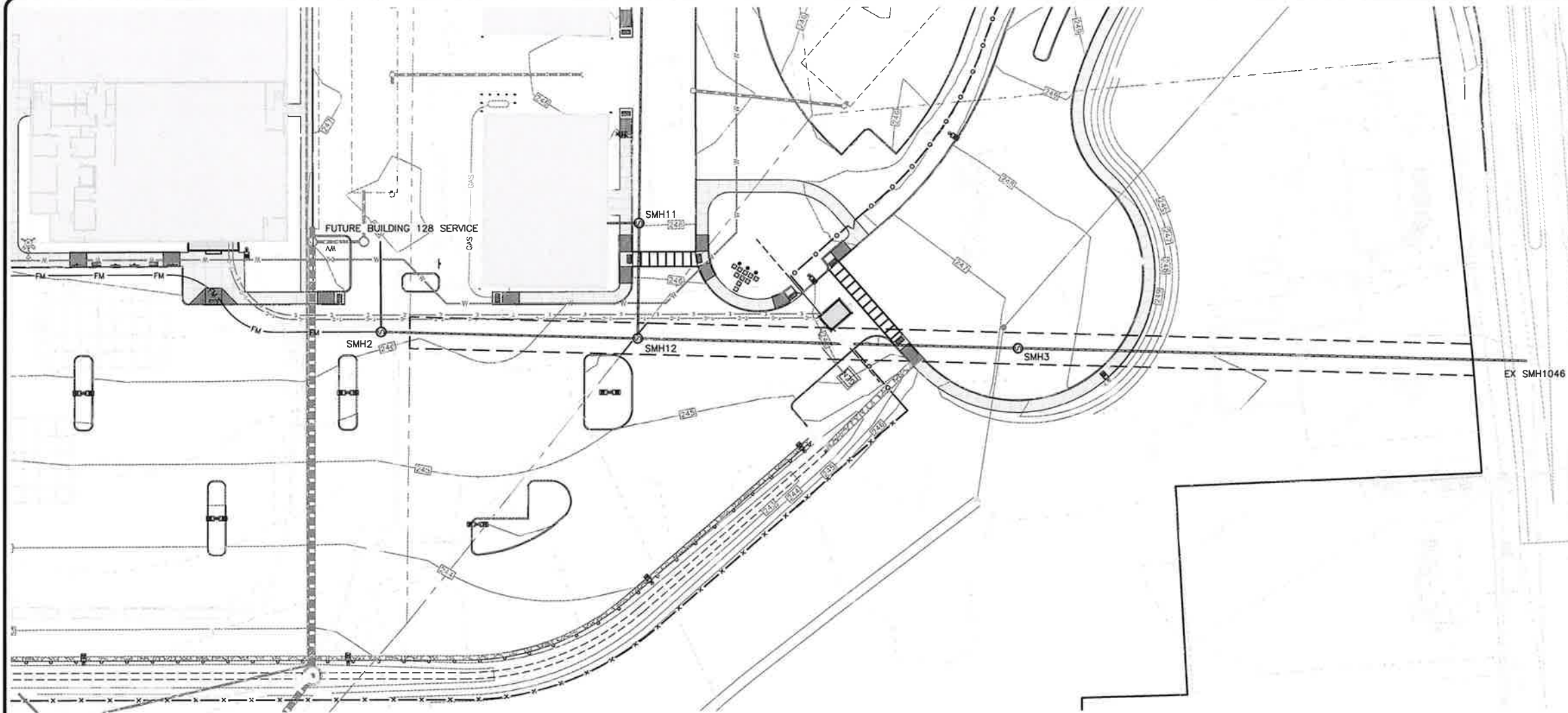
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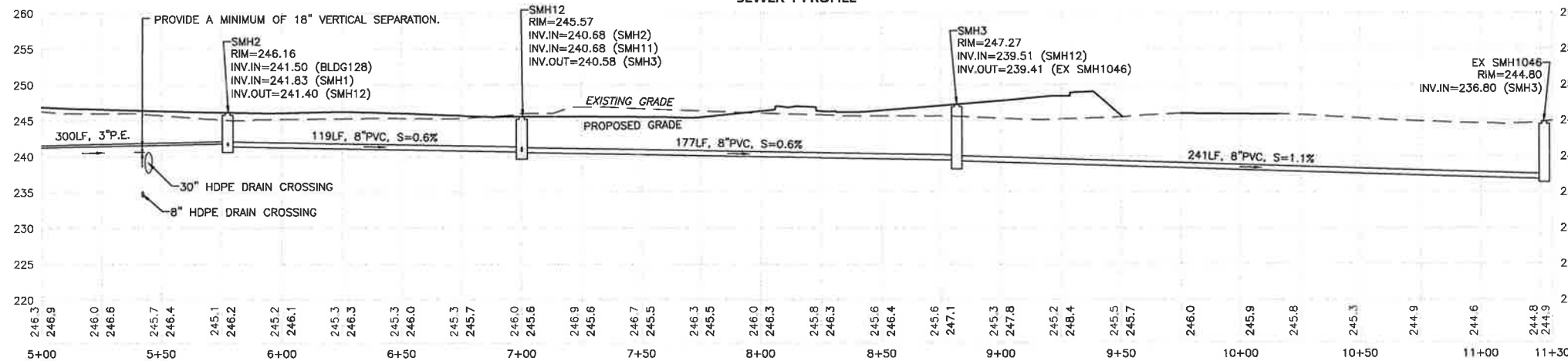


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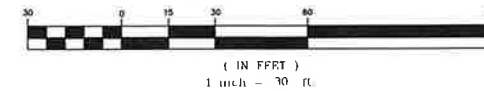
MILTON ROAD
(NH ROUTE 125 - PUBLIC - VARIABLE WIDTH)

SEWER 1 PROFILE



HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 10'

GRAPHIC SCALE



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	09-05-23	ISSUED FOR A&T

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23

SCALE: 1" = 30' DWG. NAME: C2912-01A

DESIGNED BY: SM CHECKED BY: BDJ

PREPARED BY:



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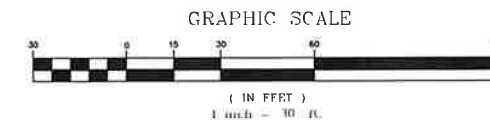
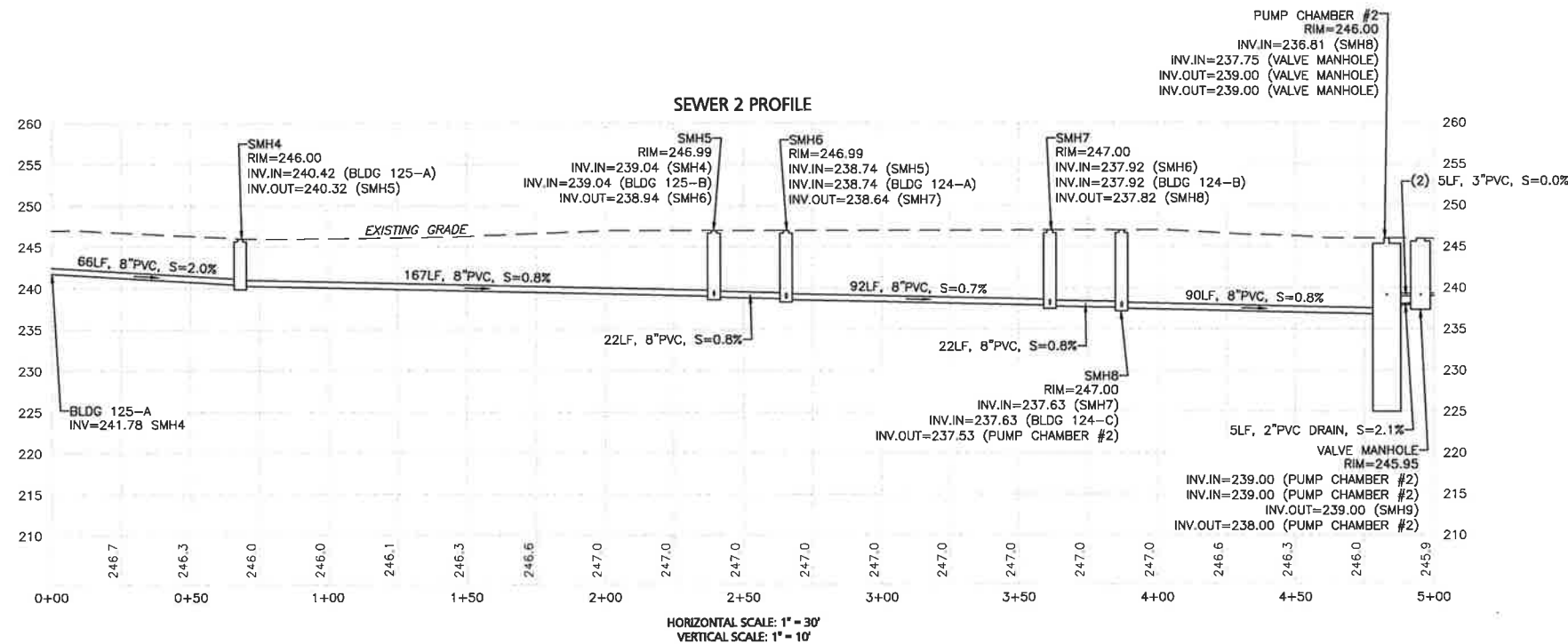
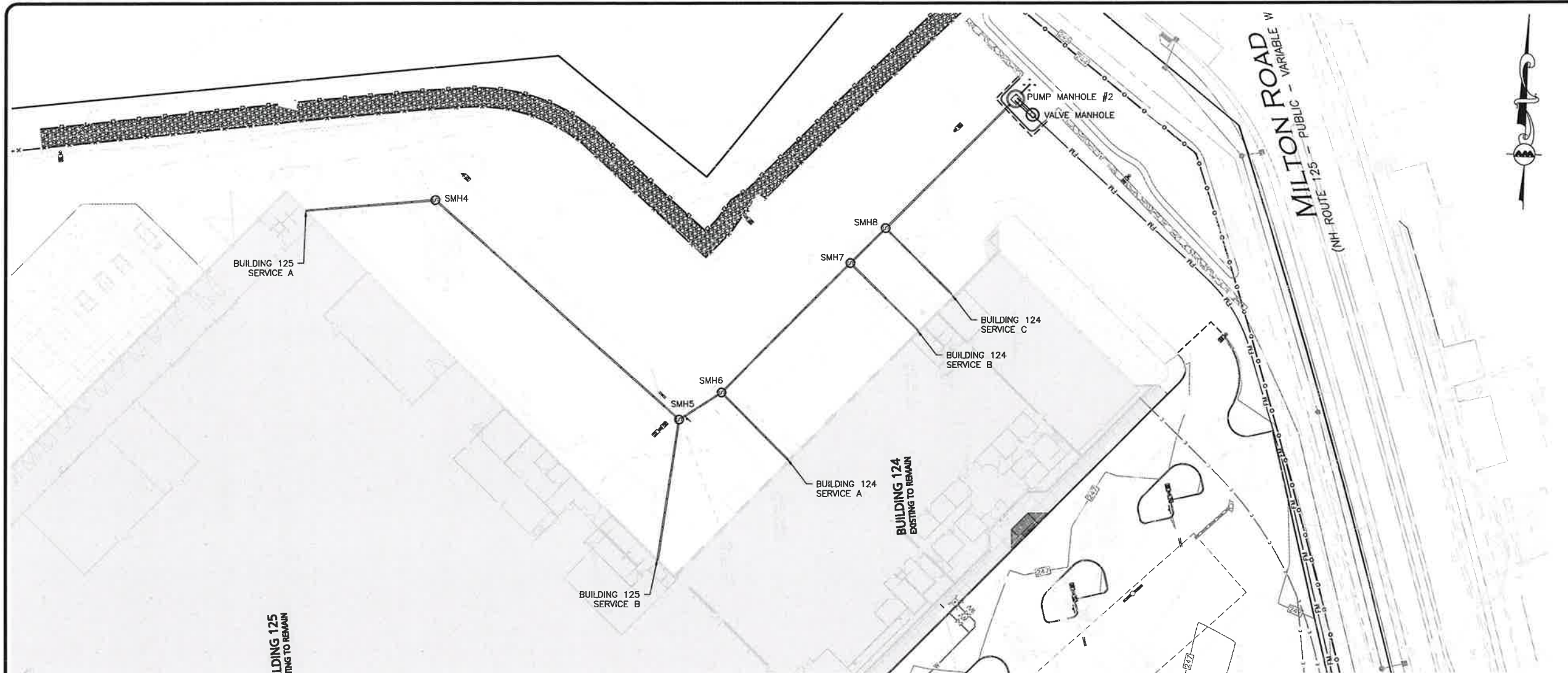
DRAWING TITLE:
SEWER PLAN &
PROFILE

SHEET No.

C-202

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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV DATE DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23

SCALE: 1" = 30' DWG. NAME: C2912-01A

DESIGNED BY: SM CHECKED BY: BDJ

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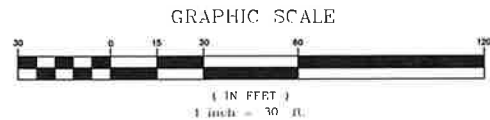
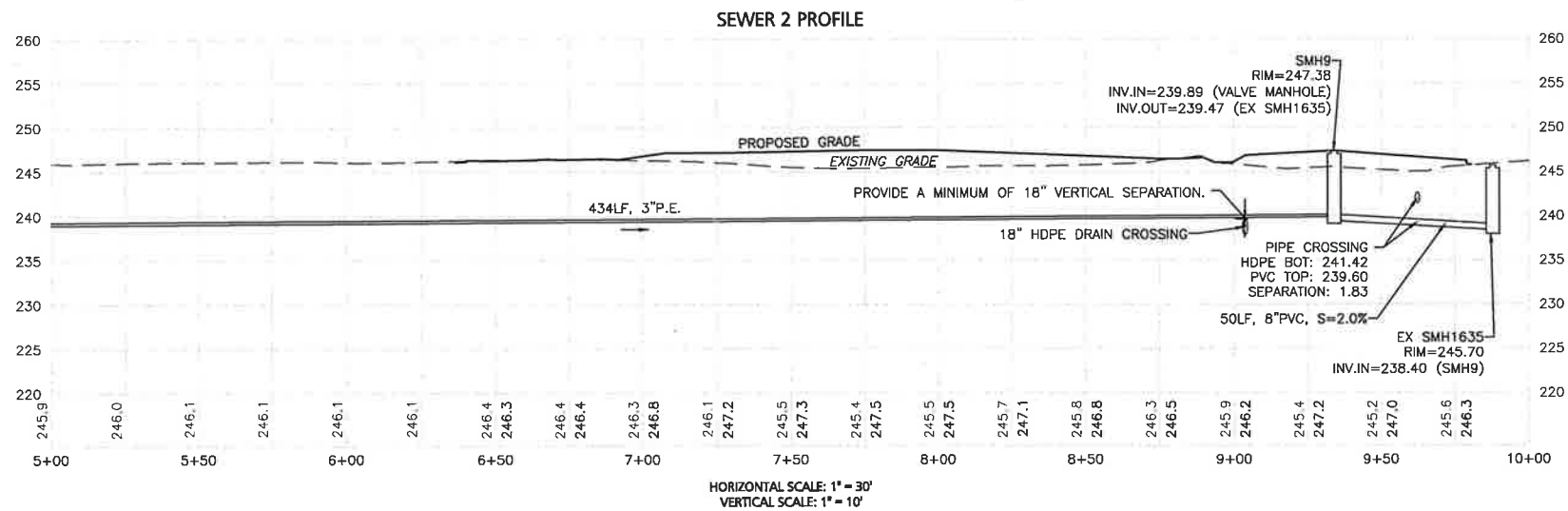
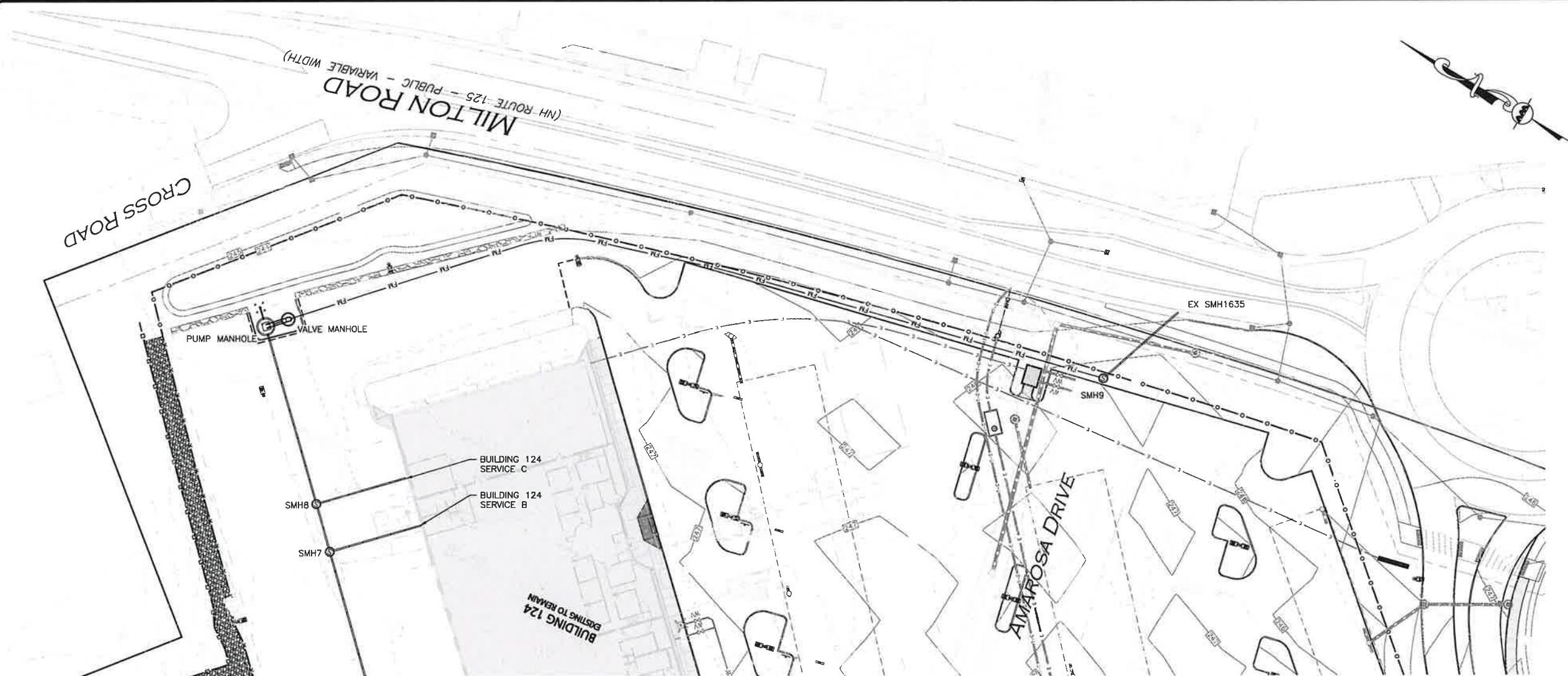
DRAWING TITLE:
**SEWER PLAN &
PROFILE**

SHEET No.

C-203

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STATE OF NEW HAMPSHIRE
BRIAN D. JONES
No. 13800
LICENSED PROFESSIONAL ENGINEER
11.03.23
PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	09-05-23	ISSUED FOR AOT

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23
SCALE: 1" = 30' DWG. NAME: C2912-01A
DESIGNED BY: SM CHECKED BY: BDJ

PREPARED BY:

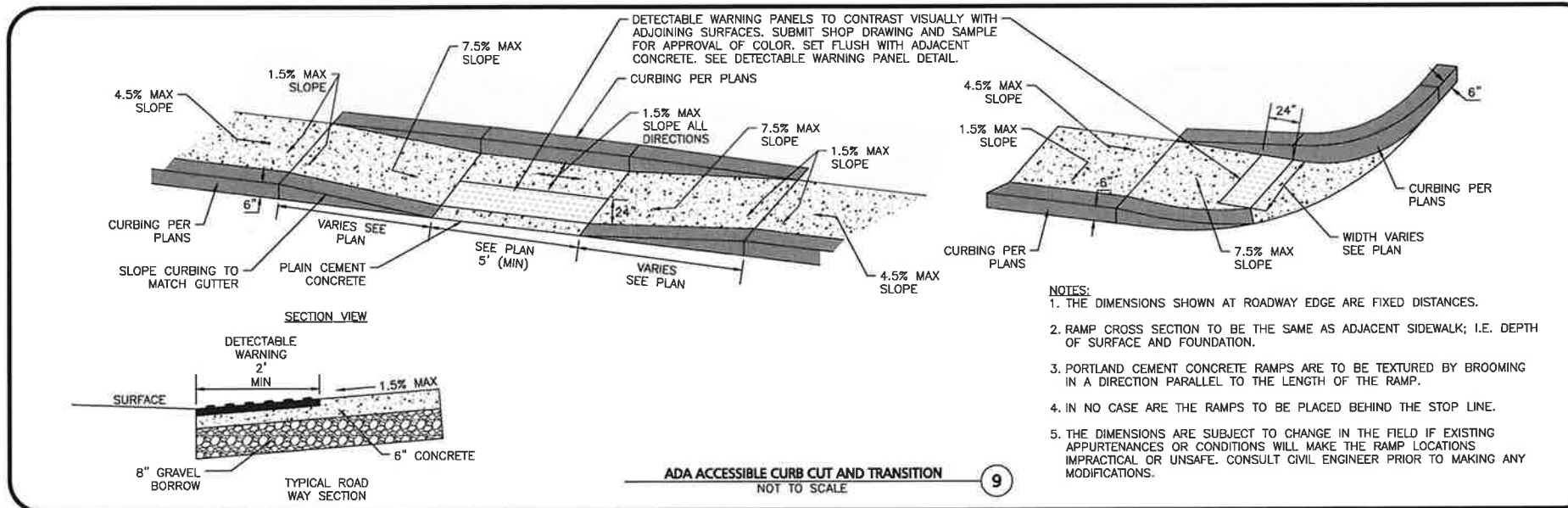
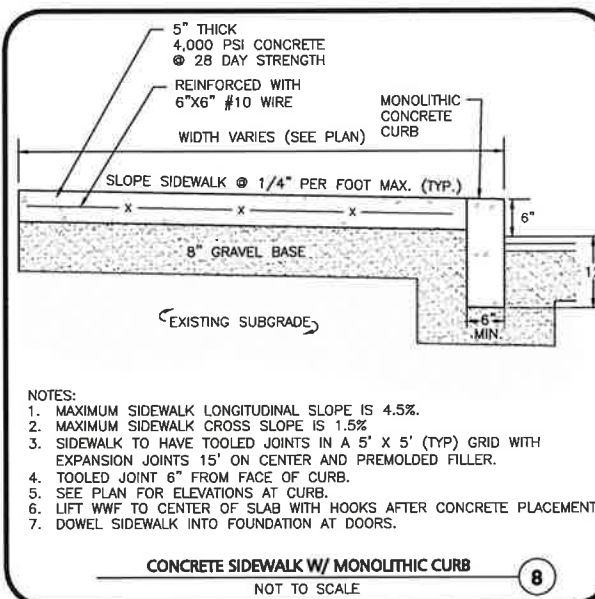
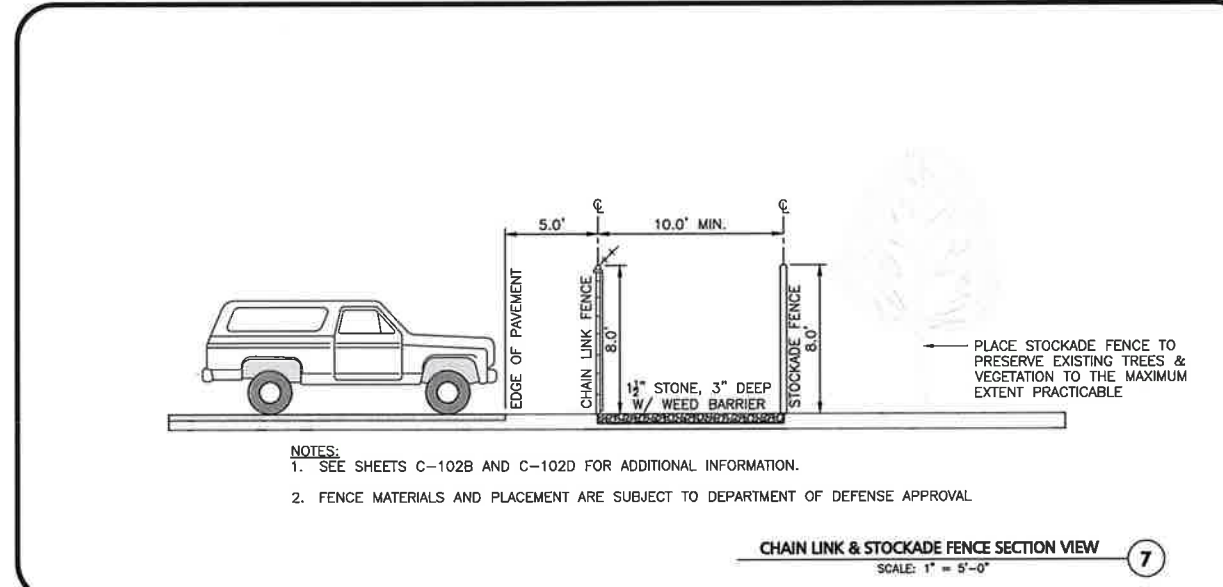
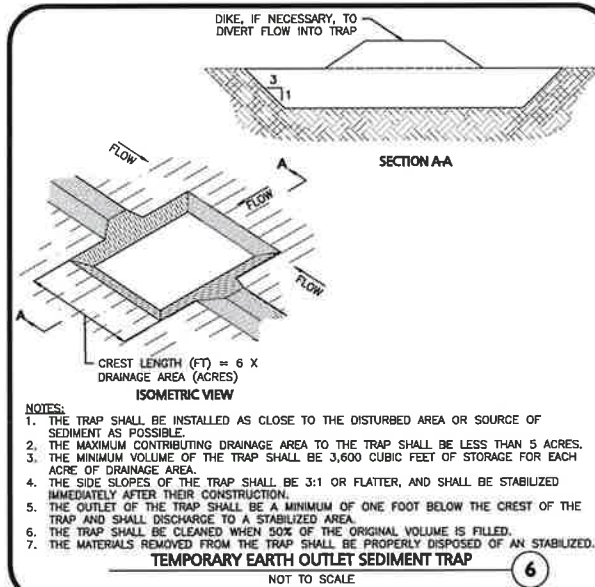
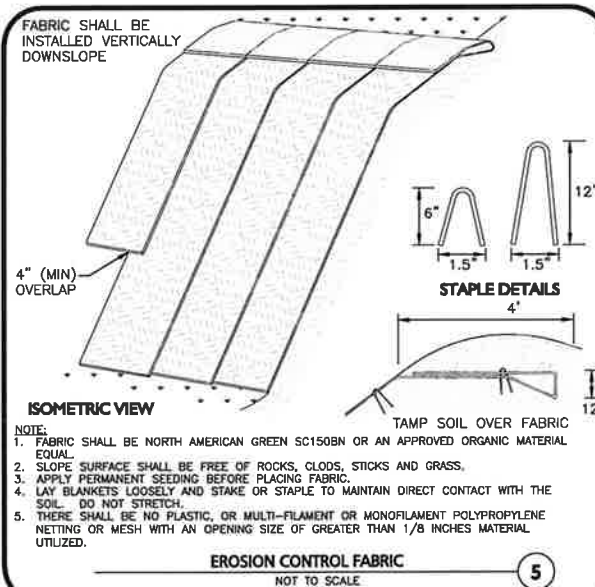
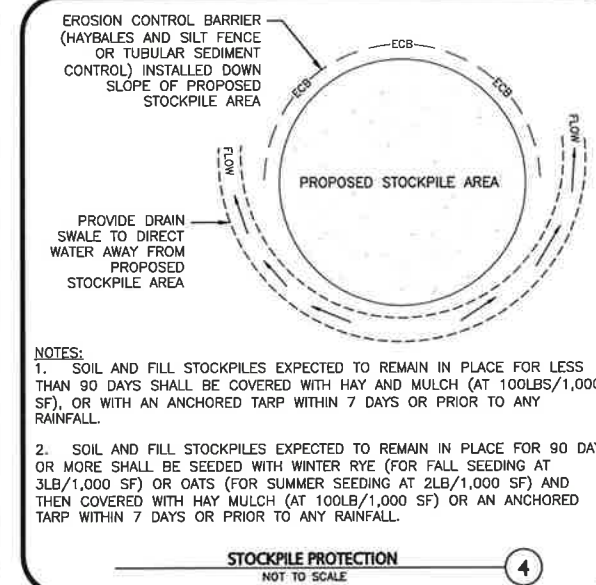
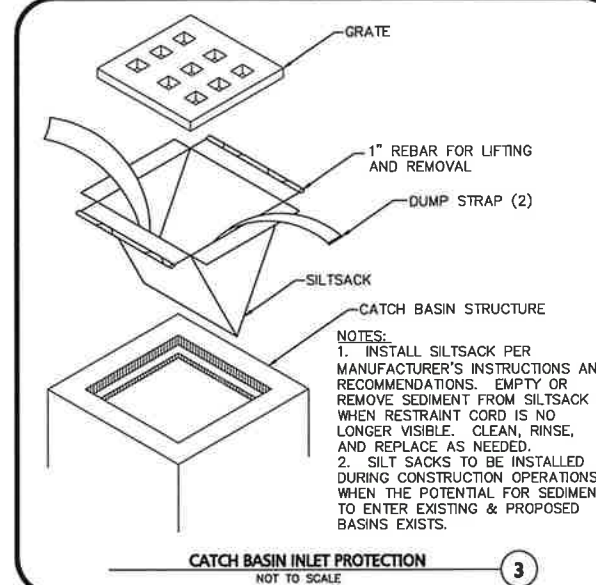
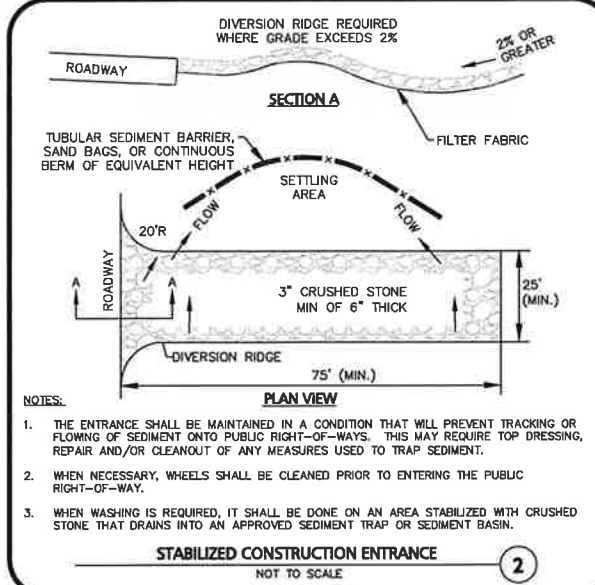
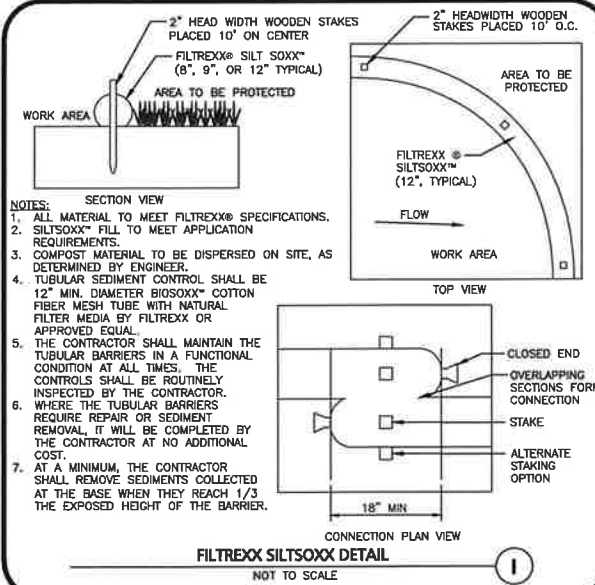
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DRAWING TITLE: SEWER PLAN & PROFILE
SHEET No. C-204

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STATE OF NEW HAMPSHIRE
BRIAN D. JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER
11.03.23
PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	09-25-23	REVISED PER COMMENTS

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

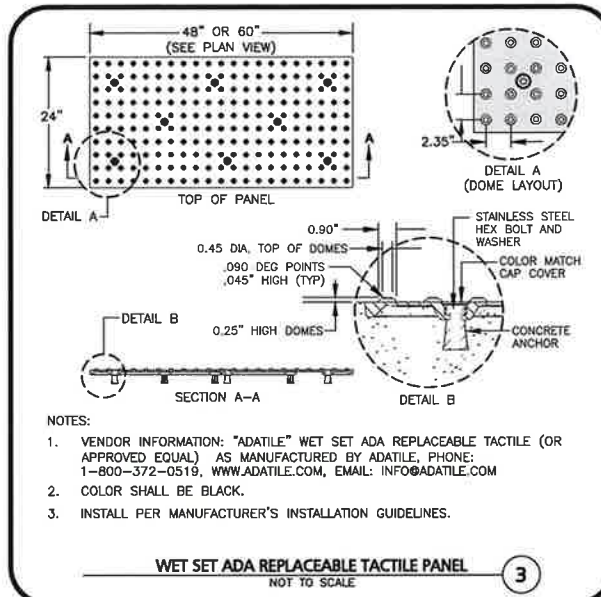
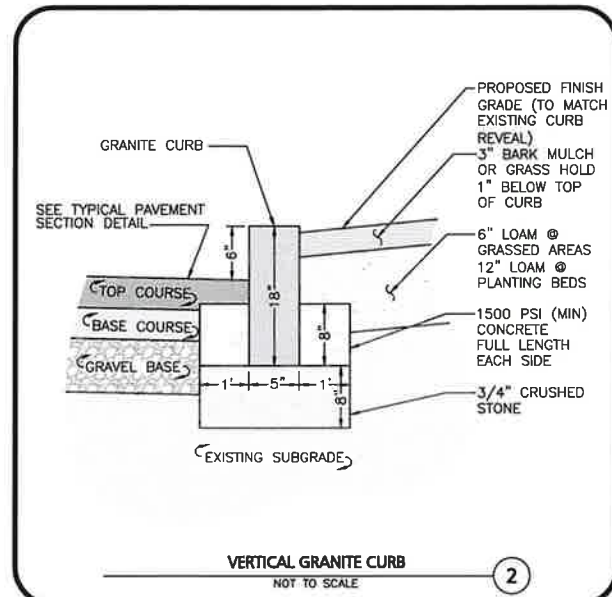
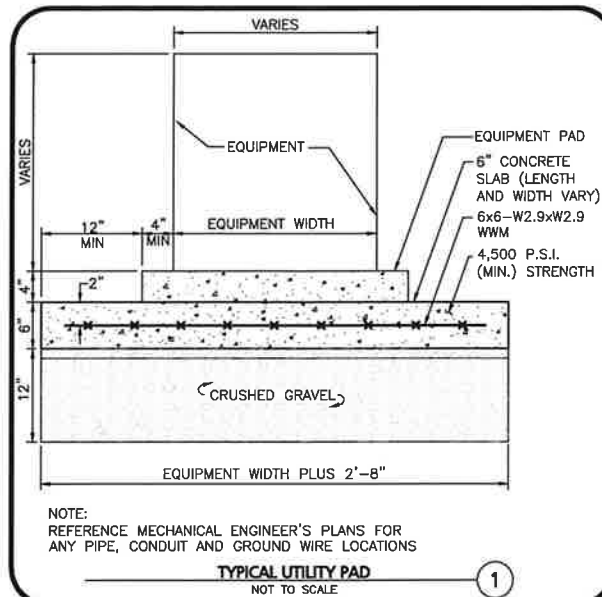
PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868




PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:
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DRAWING TITLE: DETAILS
SHEET No. C-501

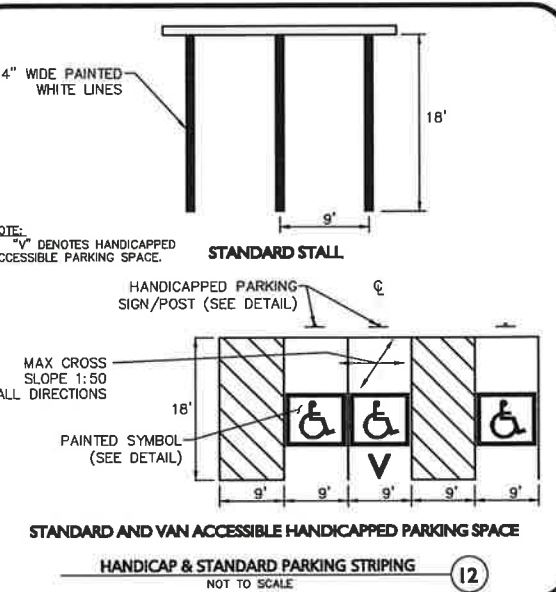
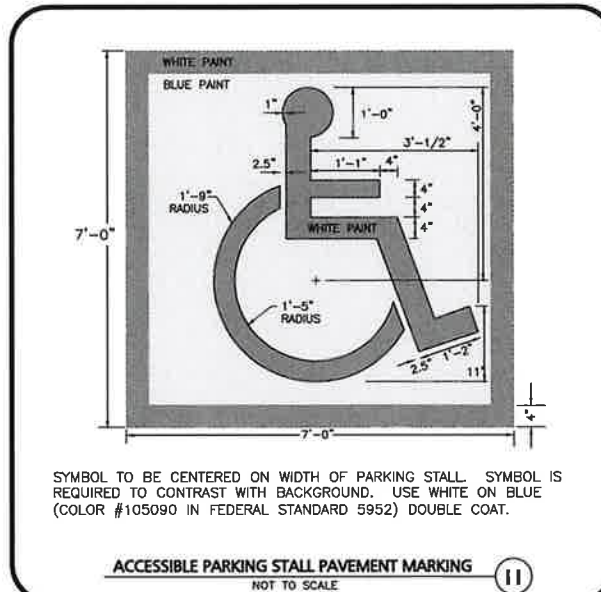
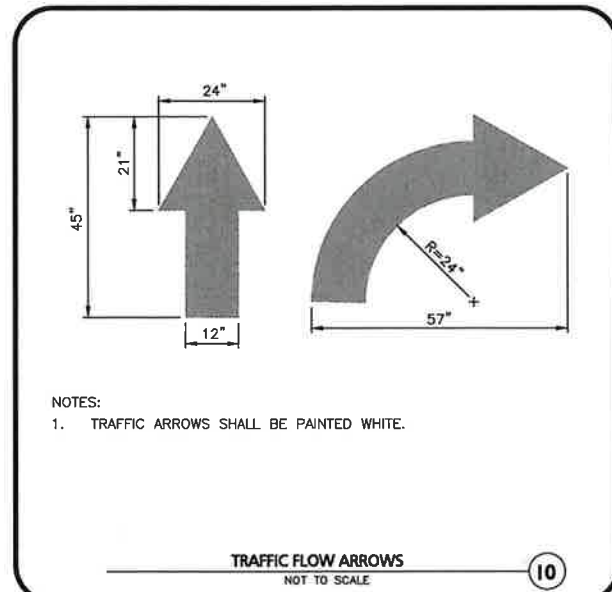
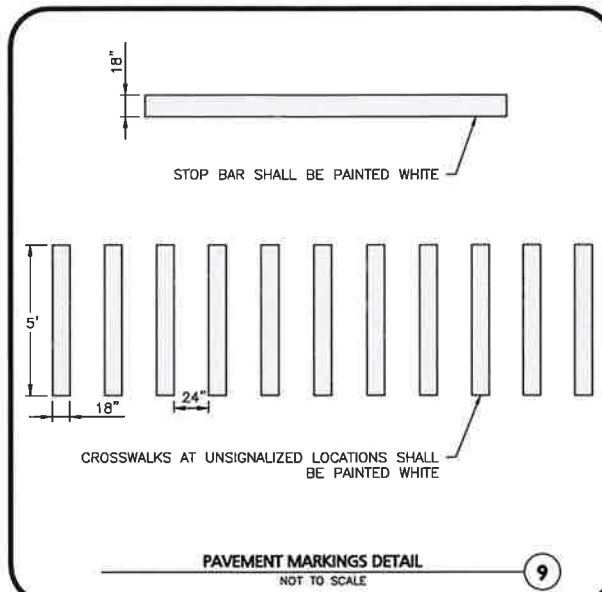
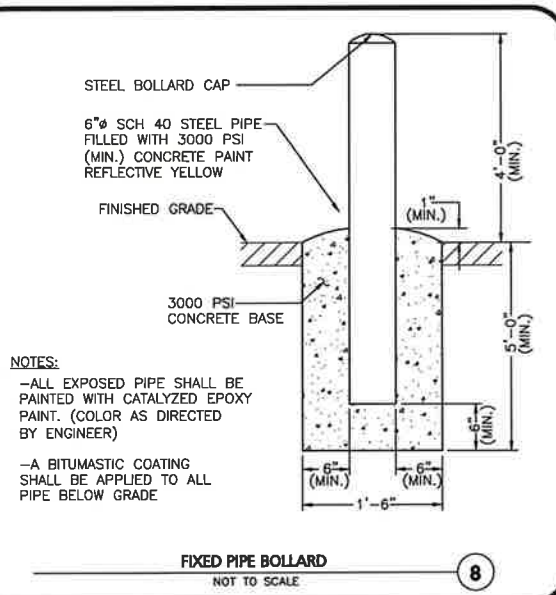
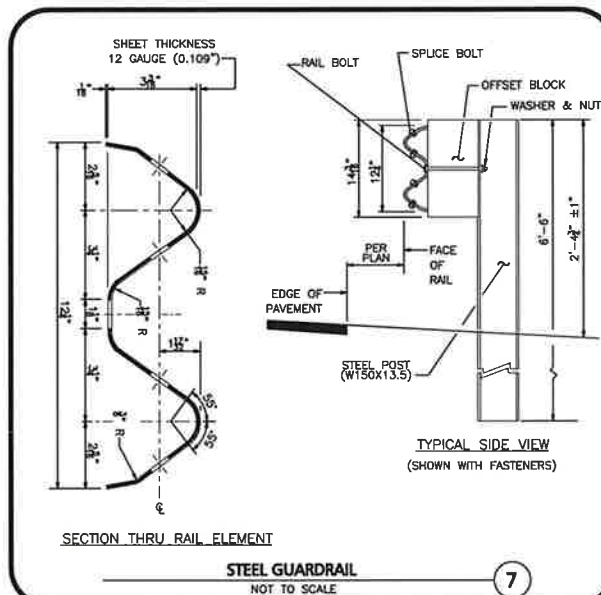
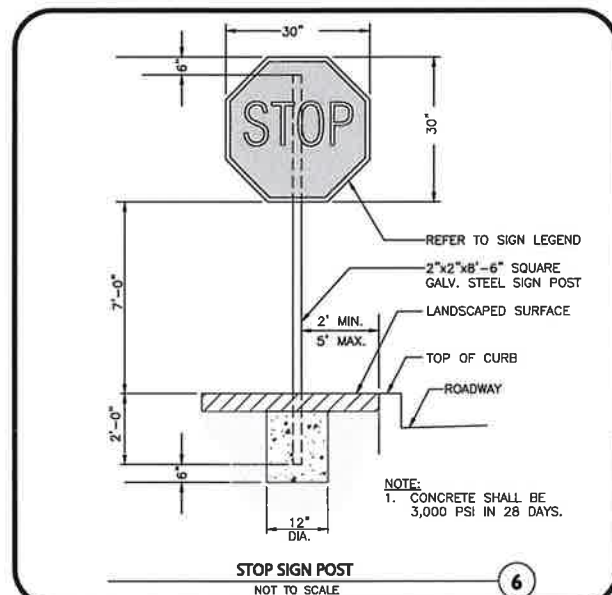
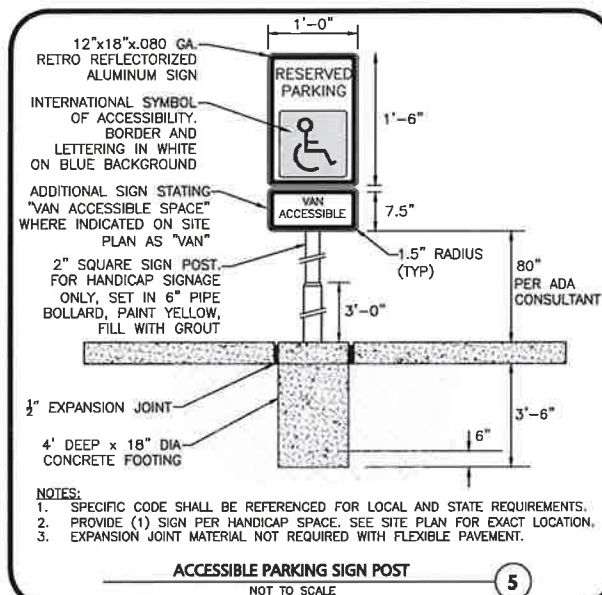


MUTCD NUMBER	SIGN	SIZE (MIN)	MOUNTING HEIGHT	DESCRIPTION	RETRO-REFLECTIVE
R1-1		30"x30"	7' - 0"	WHITE ON RED	YES
R7-8(M) (MODIFIED)		12"x24"	7' - 0"	RED ON WHITE	YES
R7-8		12"x18"	7' - 0"	GREEN & BLUE ON WHITE	YES

NOTES:

1. TRAFFIC AND SAFETY SIGNAGE SHALL COMPLY WITH MUTCD STANDARDS.
2. WHERE APPLICABLE THE SIGN SUPPORT SHALL COMPLY WITH THE BREAKAWAY REQUIREMENTS OF THE LATEST EDITION OF AASHTO'S "SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS".

SIGN TABLE
NOT TO SCALE



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:



**ALLEN & MAJOR
ASSOCIATES, INC.**

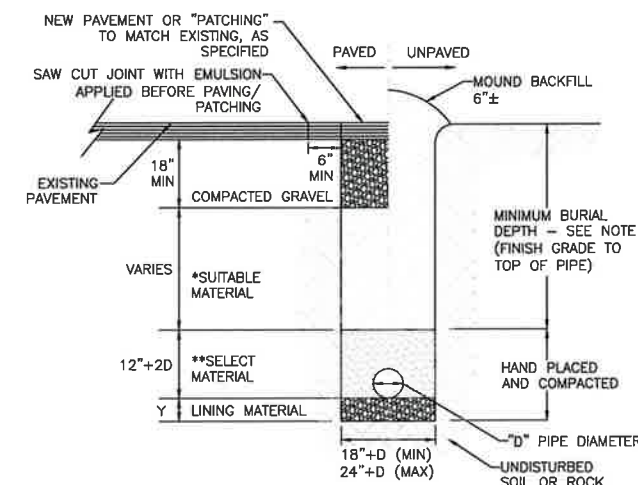
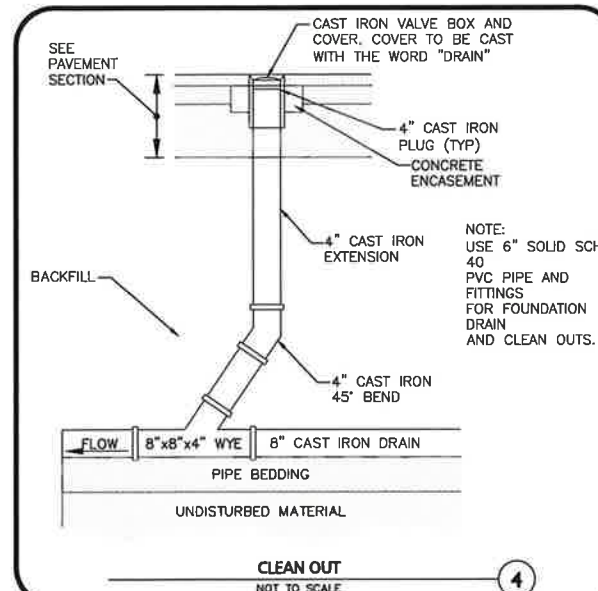
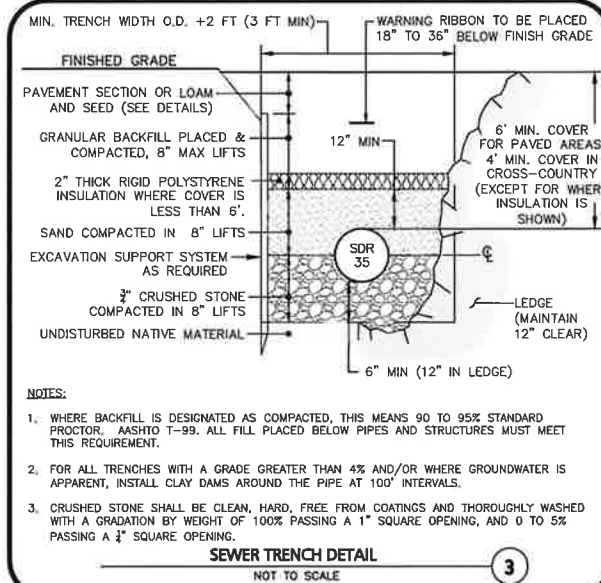
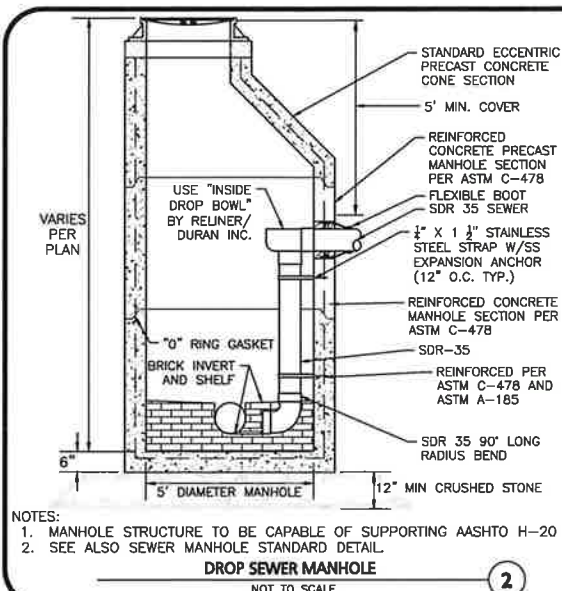
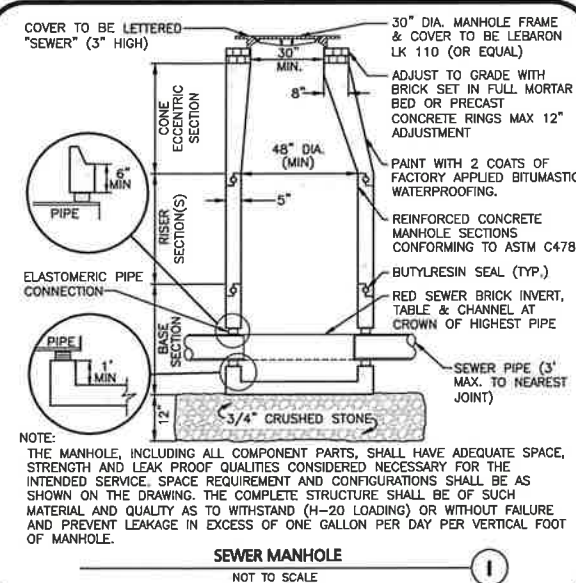
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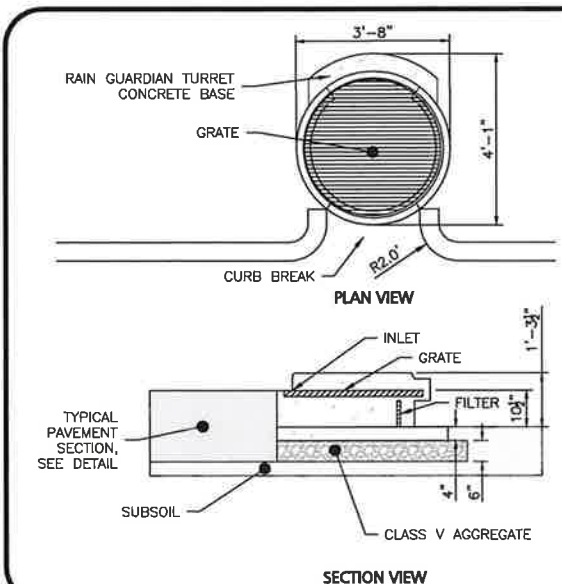
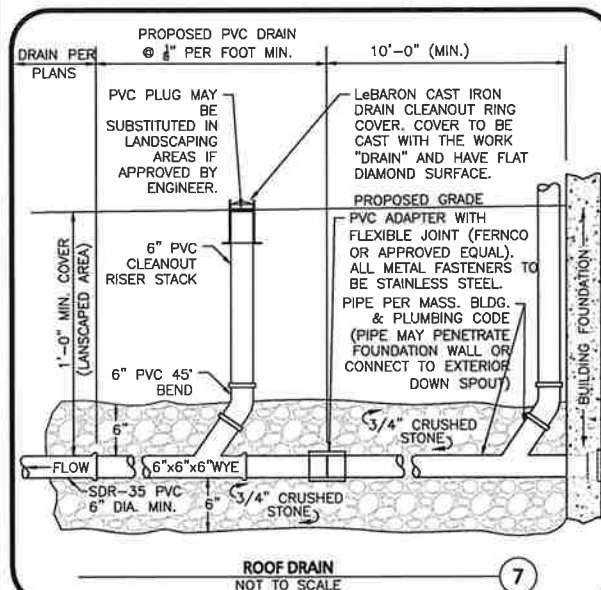
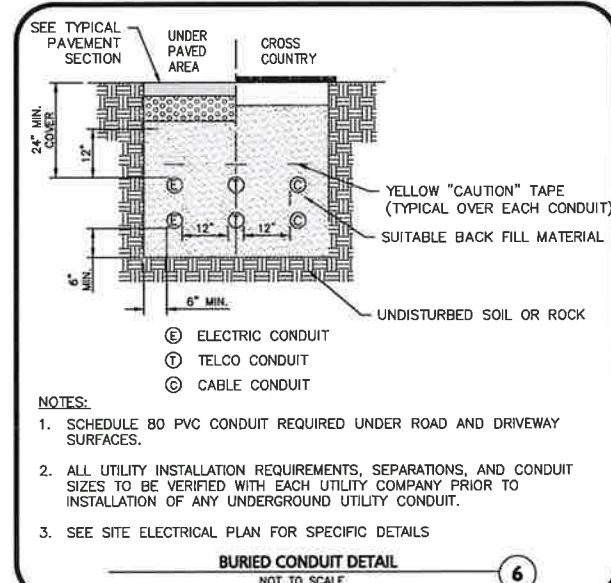
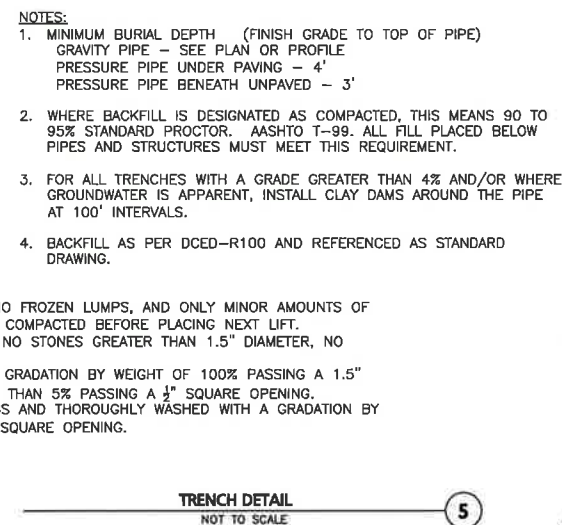
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DRAWING TITLE:	SHEET No.
DETAILS	C-502

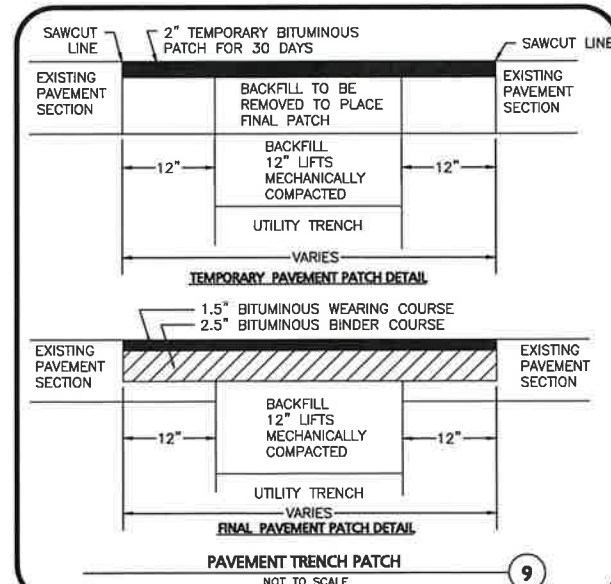


CONDITION & PIPE	**SELECT MATERIAL	LINING MATERIAL	Y-DIMENSION
DUCTILE IRON "ORDINARY SOIL"	TYPE I, II, OR III	SAND OR TYPE III	3"
RCP "ORDINARY SOIL"	TYPE II OR III	SAND OR TYPE III	3"
ALL PIPE OVER BEDROCK OR LEDGE	TYPE II OR III	SAND OR TYPE III	8"
DUCTILE IRON IN CLAY OR MUCK	TYPE II OR III	SAND	4"
RCP IN CLAY	TYPE II OR III	SAND	8"
ALL PLASTICS	TYPE III	SAND OR TYPE III	6"

- * SUIABLE MATERIAL SHALL CONTAIN NO STONE GREATER THAN 4" IN DIAMETER, NO FROZEN LUMPS, AND ONLY MINOR AMOUNTS OF CLAY OR ORGANIC MATERIAL. ALL MATERIAL TO BE PLACED IN MAX 6" LIFTS AND COMPACTED BEFORE PLACING NEXT LIFT.
- **TYPE I MATERIAL SHALL BE EITHER GRAVEL OR EXCAVATED MATERIAL CONTAINING NO STONES GREATER THAN 1.5" DIAMETER, NO FROZEN LUMPS, CLAY OR ORGANIC MATERIAL.
- **TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1.5" SQUARE OPENING, NOT MORE THAN 25% PASSING A 3" OPENING, AND NOT MORE THAN 5% PASSING A 1/2" SQUARE OPENING.
- **TYPE III MATERIAL SHALL BE CLEAN, HARD, CRUSHED STONE FREE FROM COATINGS AND THOROUGHLY WASHED WITH A GRADATION BY WEIGHT OF 100% PASSING A 1" SQUARE OPENING, AND 0 TO 5% PASSING A 1/2" SQUARE OPENING.



- NOTES:
1. STEEL REINFORCED, COLD JOINT SECURED MONOLITHIC CONCRETE STRUCTURE (1,030 LBS).
 2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. CONCRETE AIR ENTRAINED (4% TO 8% BY VOLUME).
 3. MANUFACTURED AND DESIGNED TO ASTM C858.
 4. THREE-POINT PICK USING RECESSED LIFTING POCKETS WITH A STANDARD HOOK.
 5. SOIL UNDER BASE TO BE COMPACTED TO 95% STANDARD PROCTOR.
 6. TWO-PIECE LIGHT DUTY GALVANIZED GRATE (34.5 LBS/PIECE) FOR 541 LB CONCENTRATED LOAD OR 309 LB/SQ FT UNIFORM LOAD.
 7. TWO-PIECE HEAVY DUTY GALVANIZED GRATE (77.5 LBS/PIECE) FOR 2,456 LB CONCENTRATED LOAD OR 1,404 LB/SQ FT UNIFORM LOAD.
 8. USE EXPANSION JOINT MATERIAL BETWEEN TURRET AND BIORETENTION INLET.



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:



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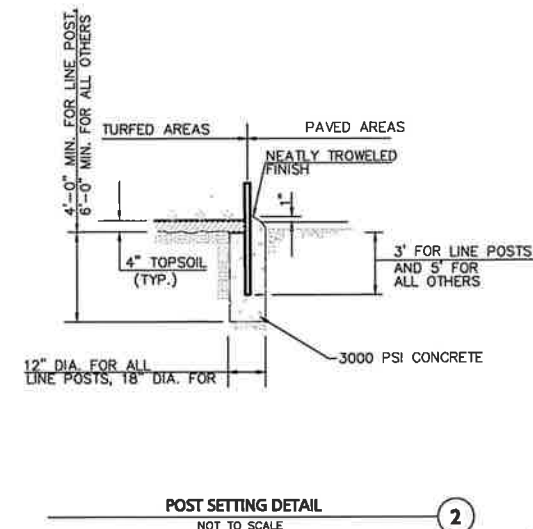
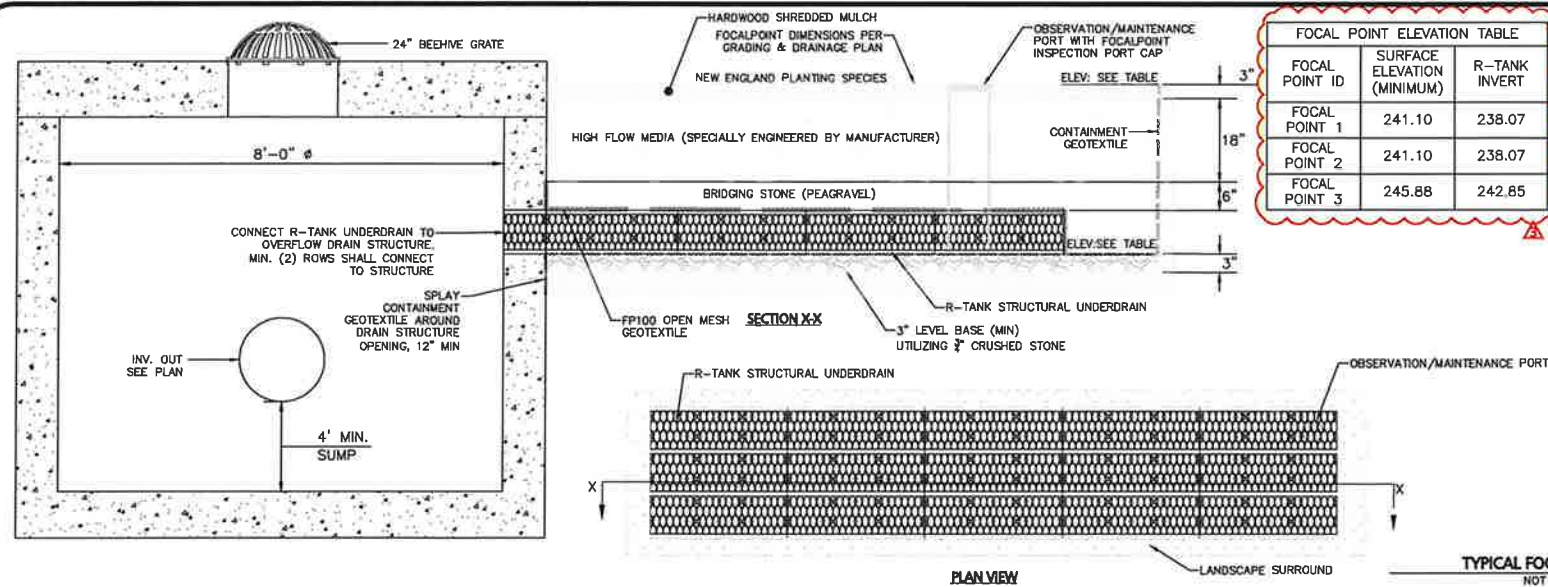
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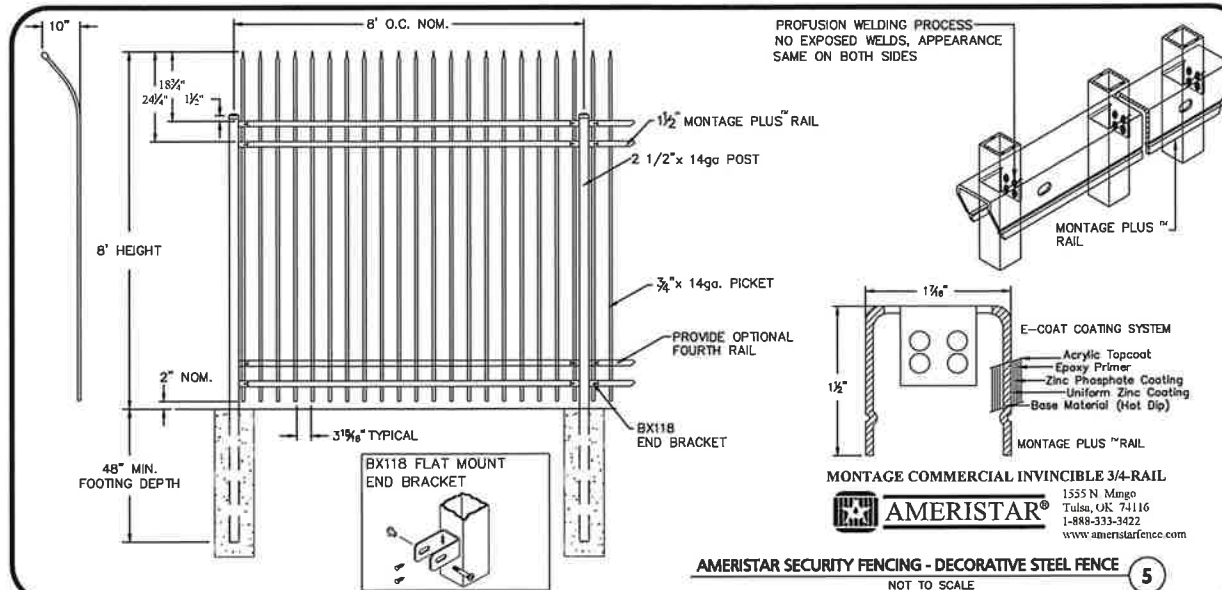
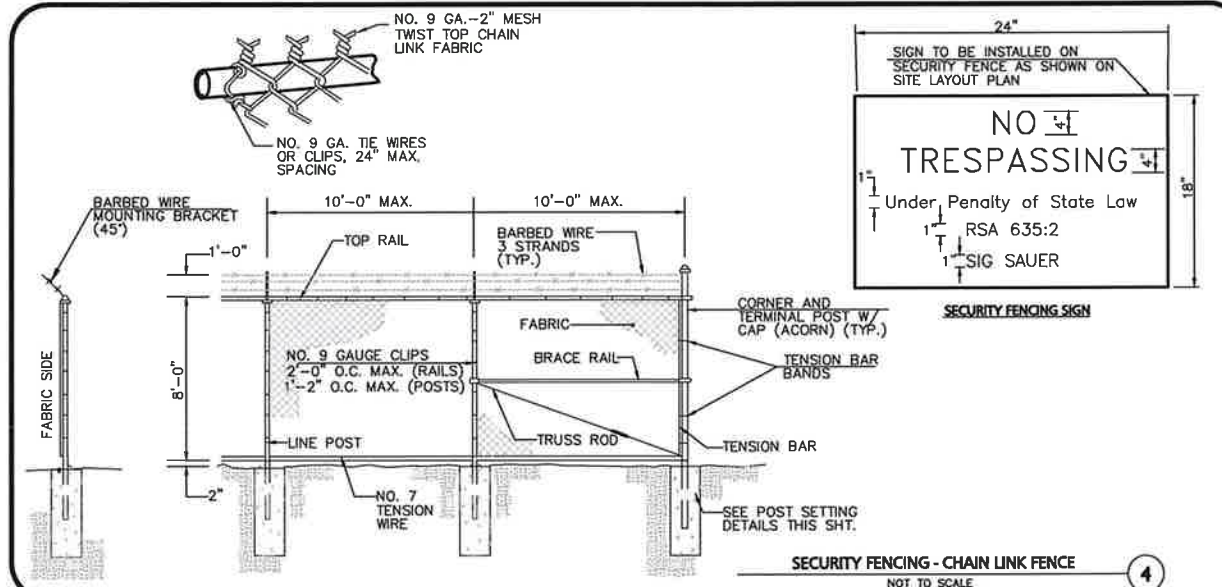
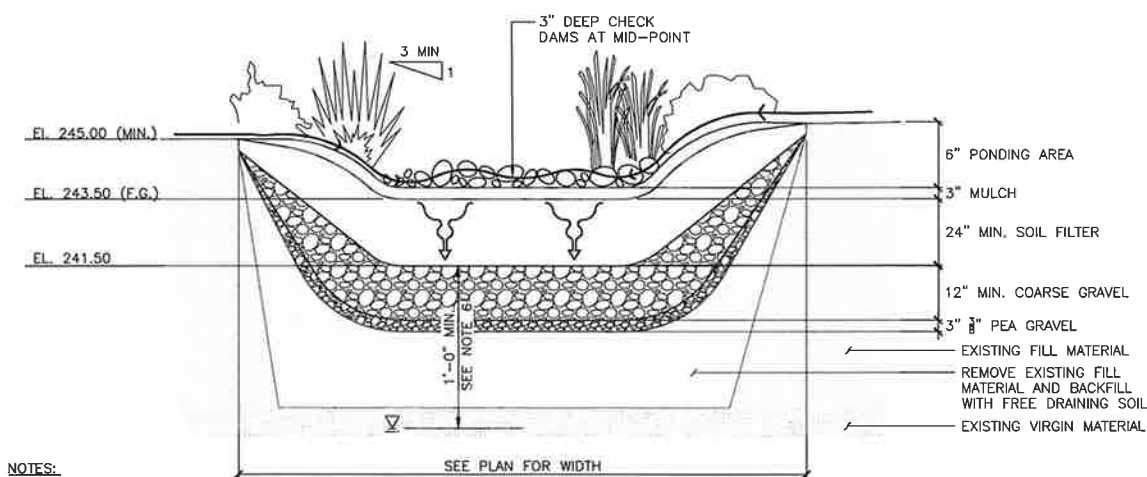
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BIORETENTION FILTER MEDIA			
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	
		SIEVE NO.	PERCENT BY WEIGHT PASSING STANDARD SIEVE
FILTER MEDIA OPTION A			
ASTM C-22 CONCRETE SAND	50 TO 55		
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
FILTER MEDIA OPTION B			
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
LOAMY COARSE SAND	70 TO 80	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
		200	8 TO 15



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

Brian D. Jones
No. 15869
LICENSED PROFESSIONAL ENGINEER

11-03-23

REV	DATE	DESCRIPTION
1	11-03-23	REVISED PER AOT COMMENTS
2	09-25-23	REVISED PER COMMENTS
1	09-05-23	ISSUED FOR AOT

APPLICANT:

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72 PEASE BLVD
NEWINGTON, NH 03801

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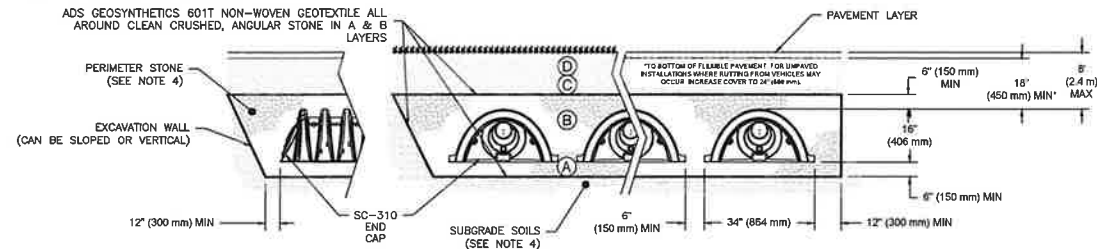
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ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145' A-1, A-2-4, A-3 OR AASHTO M43' 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43' 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43' 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

PLEASE NOTE:

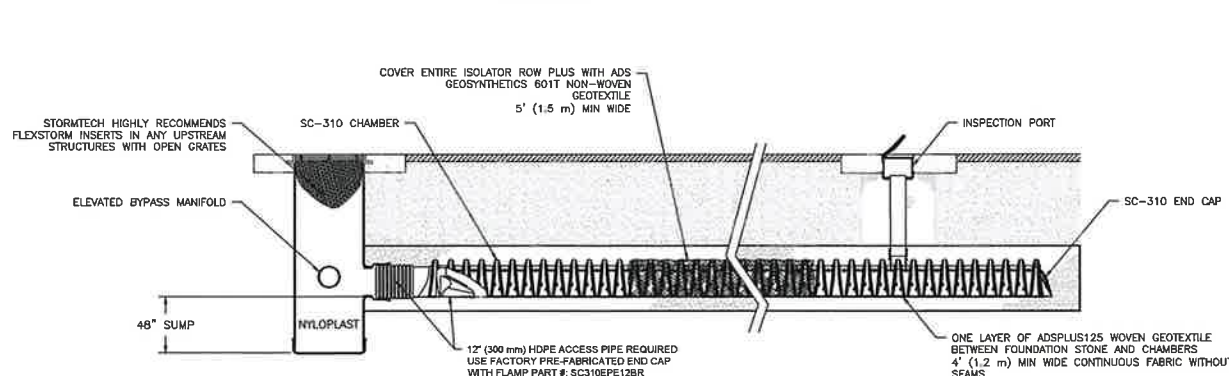
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT, FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- COORDINATE WITH THE PROJECT GEOTECHNICAL ENGINEER FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

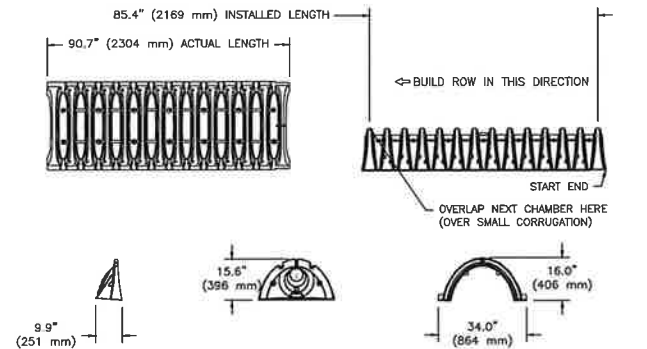
SC-310 - CROSS SECTION DETAIL
NOT TO SCALE



SC-310 - ISOLATOR ROW PLUS DETAIL
NOT TO SCALE



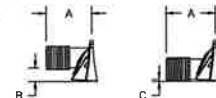
STORMTECH SC-310 CHAMBER INFILTRATION SYSTEM
NOT TO SCALE



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4" (864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET (0.42 m ³)
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET (0.88 m ³)
WEIGHT	35.0 lbs. (16.8 kg)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLANGE END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

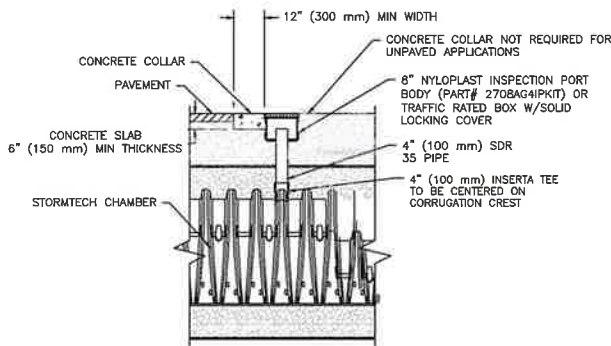
PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC	6" (150 mm)	---	---	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	---
SC310EPE08B / SC310EPE08BPC	8" (200 mm)	---	---	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	---
SC310EPE10B / SC310EPE10BPC	10" (250 mm)	---	---	0.7" (18 mm)
SC310EPE12B	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)
SC310EPE12BR	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 SUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL.

4" PVC INSPECTION PORT
NOT TO SCALE



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

SC-310 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-310.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

CONSTRUCTION NOTES:

- DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
- AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
- DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
1	11-03-23	REVISED PER AOT COMMENTS

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE	07-25-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:

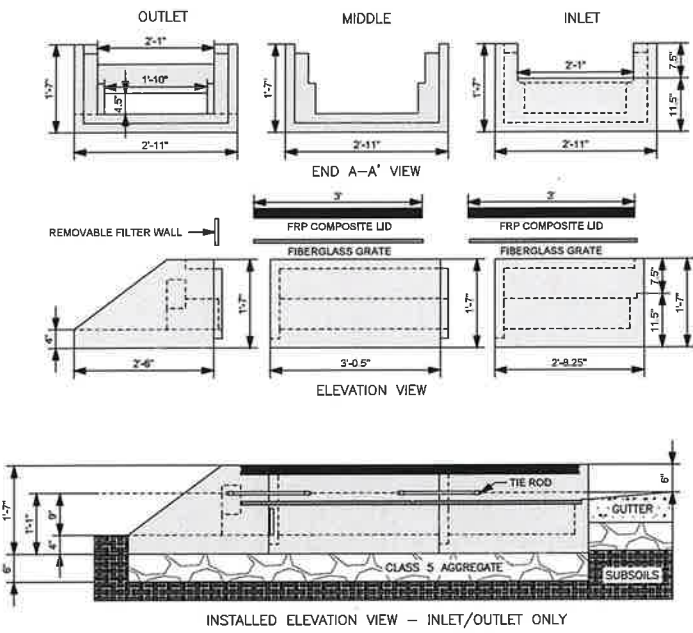
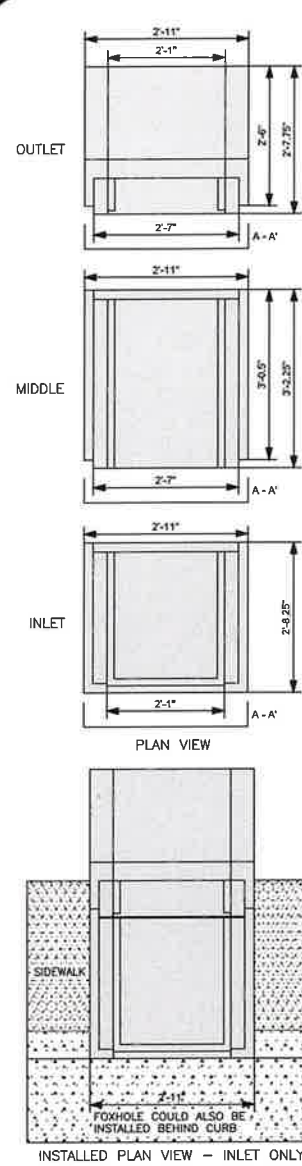


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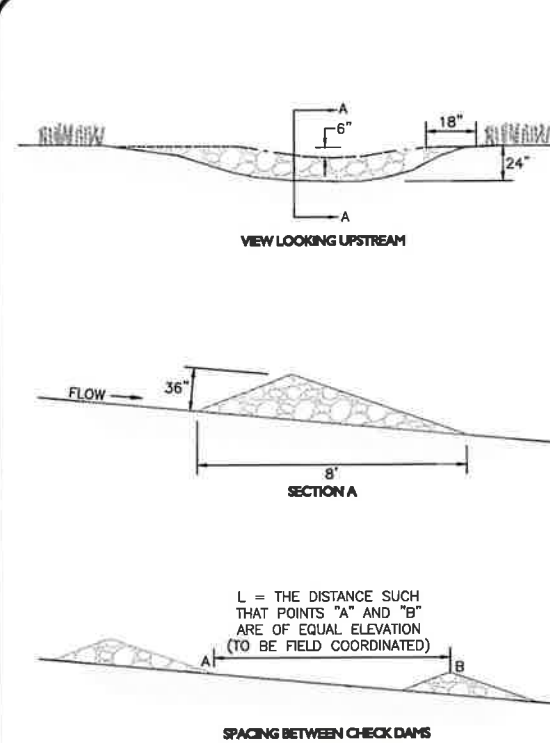
DRAWING TITLE:	SHEET No.
DETAILS	C-506

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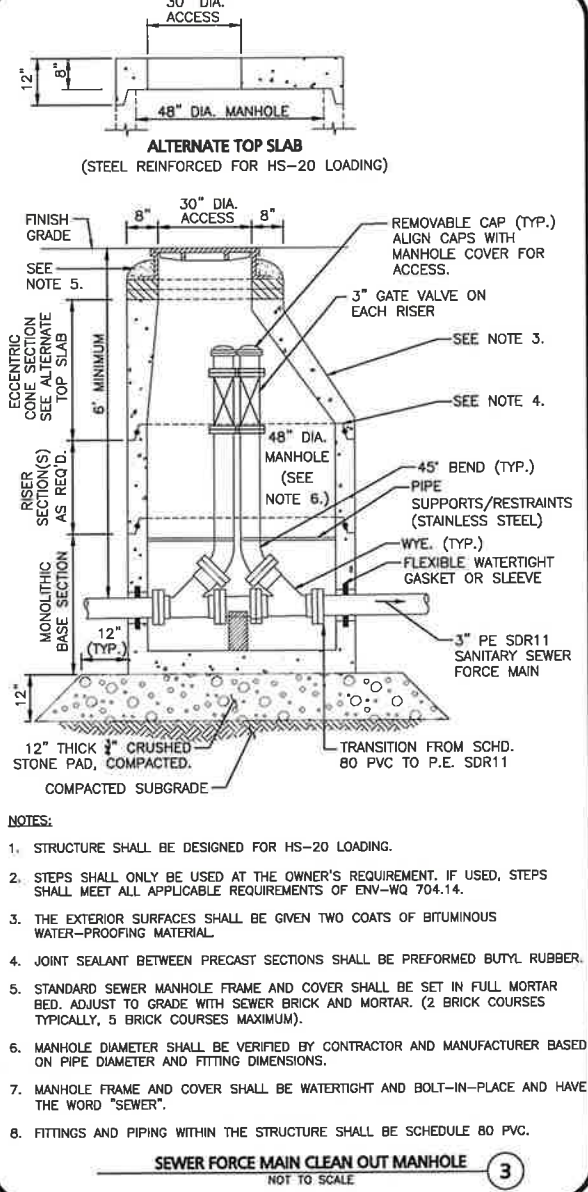
- SPECIFICATIONS:**
1. STEEL REINFORCED, COLD JOINT SECURED MONOLITHIC CONCRETE STRUCTURES (INLET 875 LBS, MIDDLE 965 LBS, AND OUTLET 730 LBS). CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS. CONCRETE AIR ENTRAINMENT (5% TO 8.5% BY VOLUME), MANUFACTURED AND DESIGNED TO ASTM C858.
 2. 2-POINT PICK USING RECESSED LIFTING POCKETS WITH A STANDARD HOOK.
 3. FIBERGLASS GRATE (11 LBS/PIECE).
 4. FRP COMPOSITE LID (38 LBS/PIECE) WITH CONCENTRATED LOAD CAPACITY OF 11,200 LBS.
- INSTALLATION NOTES:**
1. INSTALL A CLASS 5 BASE (COMPACTED TO 95% STANDARD PROCTOR). IT IS CRITICAL THAT THE CLASS 5 BASE IS EVEN TO ENSURE THE FOXHOLE PIECES ALIGN VERTICALLY SUCH THAT THE TOP LIDS LAY FLUSH WITH THE TOP OF THE FOXHOLE PIECES AND ADJACENT BOULEVARD, SIDEWALK, OR PATH. THE DISTANCE FROM THE BACK OF THE CURB MAY VARY BASED ON SITE CONDITIONS. EXCAVATE 1'-7" BELOW THE GUTTERLINE ELEVATION (I.E. THE BORETENTION OVERFLOW ELEVATION) TO ACCOMMODATE THE 9" PONDING DEPTH. 6" CLASS 5 AGGREGATE, AND 4" RAIN GUARDIAN FOXHOLE BASE (INCLUDED). THEREFORE, THE TOP OF THE CLASS 5 COMPACTED BASE IS PRECISELY 1' 1" BELOW THE GUTTERLINE ELEVATION. THE TOP OF THE RAIN GUARDIAN FOXHOLE INLET POINT WILL BE 7-1/2" ABOVE THE TOP OF THE CONCRETE BASE AND 1-1/2" BELOW THE GUTTERLINE ELEVATION TO ACCOMMODATE A SLOPED INLET FROM THE GUTTER TO THE RAIN GUARDIAN FOXHOLE.
 2. SET RAIN GUARDIAN FOXHOLE INLET FIRST, FOLLOWED BY MIDDLE SECTION(S), AND FINALLY THE OUTLET ON THE PREPARED CLASS 5 BASE. POSITION RAIN GUARDIAN FOXHOLE OUTLET PIECE SO PRIMARY OUTLET ALIGNS WITH TOE OF BASIN SIDE SLOPE TO AVOID SOIL INTERFERENCE WITH REMOVABLE FILTER WALL.
 3. SECURE MODULAR FOXHOLE PIECES AT EACH JOINT USING PROVIDED GALVANIZED TIE RODS.
 4. INSTALL EXPANSION/CONTRACTION JOINT MATERIAL OR A SHEET OF POLY TO SERVE AS A BOND BREAK BETWEEN RAIN GUARDIAN FOXHOLE AND CONCRETE INLET BEFORE POURING INLET.
 5. REMOVABLE FILTER WALL SHOULD BE INSTALLED WITH FILTER FABRIC FACING THE RAIN GUARDIAN FOXHOLE INLET.

RAIN GUARDIAN - FOXHOLE TYPICAL DETAIL
NOT TO SCALE



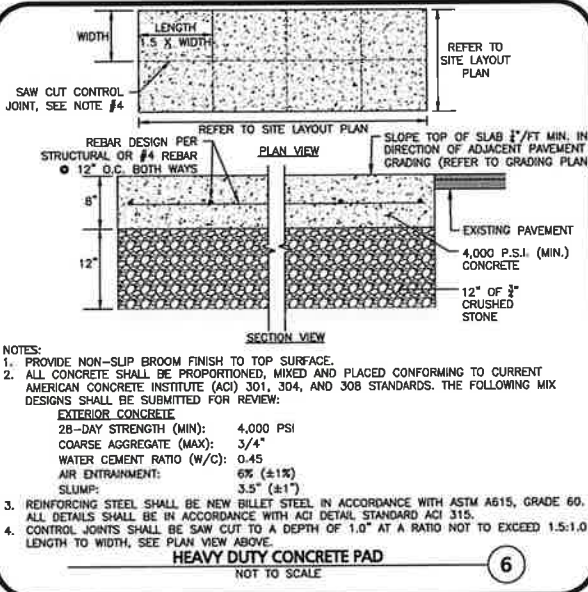
- NOTES:**
1. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE DAM SHALL BE LESS THAN ONE ACRE.
 2. THE MAXIMUM HEIGHT OF THE DAM SHALL BE 2 FEET.
 3. THE CENTER OF THE DAM SHALL BE AT LEAST 6 INCHES LOWER THAN THE OUTER EDGES.
 4. THE MAXIMUM SPACING BETWEEN THE DAMS SHALL BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE OVERFLOW ELEVATION OF THE DOWNSTREAM DAM.
 5. THE DAMS SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
 6. CHECK DAMS SHALL BE CONSTRUCTED OF A WELL-GRADED ANGULAR 2-INCH TO 3-INCH STONE.

TEMPORARY CHECK DAM
NOT TO SCALE



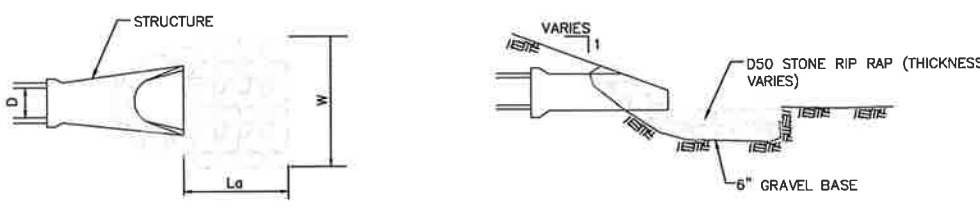
- NOTES:**
1. STRUCTURE SHALL BE DESIGNED FOR HS-20 LOADING.
 2. STEPS SHALL ONLY BE USED AT THE OWNER'S REQUIREMENT. IF USED, STEPS SHALL MEET ALL APPLICABLE REQUIREMENTS OF ENV-WQ 704.14.
 3. THE EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BITUMINOUS WATER-PROOFING MATERIAL.
 4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
 5. STANDARD SEWER MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED, ADJUST TO GRADE WITH SEWER BRICK AND MORTAR. (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
 6. MANHOLE DIAMETER SHALL BE VERIFIED BY CONTRACTOR AND MANUFACTURER BASED ON PIPE DIAMETER AND FITTING DIMENSIONS.
 7. MANHOLE FRAME AND COVER SHALL BE WATERTIGHT AND BOLT-IN-PLACE AND HAVE THE WORD "SEWER".
 8. FITTINGS AND PIPING WITHIN THE STRUCTURE SHALL BE SCHEDULE 80 PVC.

SEWER FORCE MAIN CLEAN OUT MANHOLE
NOT TO SCALE



- NOTES:**
1. PROVIDE NON-SLIP BROOM FINISH TO TOP SURFACE.
 2. ALL CONCRETE SHALL BE PROPORTIONED, MIXED AND PLACED CONFORMING TO CURRENT AMERICAN CONCRETE INSTITUTE (ACI) 301, 304, AND 308 STANDARDS. THE FOLLOWING MIX DESIGNS SHALL BE SUBMITTED FOR REVIEW:
EXTERIOR CONCRETE:
28-DAY STRENGTH (MIN): 4,000 PSI
COARSE AGGREGATE (MAX): 3/4"
WATER CEMENT RATIO (W/C): 0.45
AIR ENTRAINMENT: 6% (±1%)
SLUMP: 3.5" (±1")
 3. REINFORCING STEEL SHALL BE NEW BILLET STEEL IN ACCORDANCE WITH ASTM A615, GRADE 60. ALL DETAILS SHALL BE IN ACCORDANCE WITH ACI DETAIL STANDARD ACI 315.
 4. CONTROL JOINTS SHALL BE SAW CUT TO A DEPTH OF 1.0" AT A RATIO NOT TO EXCEED 1.5:1.0 LENGTH TO WIDTH, SEE PLAN VIEW ABOVE.

HEAVY DUTY CONCRETE PAD
NOT TO SCALE



RIP-RAP SIZING CHART					
STRUCTURE	D	Lo	W	D50	THICKNESS
HW-01	18"	21'	26'	8"	18"
HW-02	8"	10'	12'	3"	7"
HW-03	30"	23'	31'	6"	14"

RIP-RAP OUTFALL APRON
NOT TO SCALE



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
**PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868**

PROJECT NO. 2912-01A DATE: 07-25-23
SCALE: AS SHOWN DWG. NAME: C2912-01A
DESIGNED BY: SM CHECKED BY: BDJ

PREPARED BY:
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MANCHESTER, NH 03108
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DRAWING TITLE: DETAILS SHEET No. C-507

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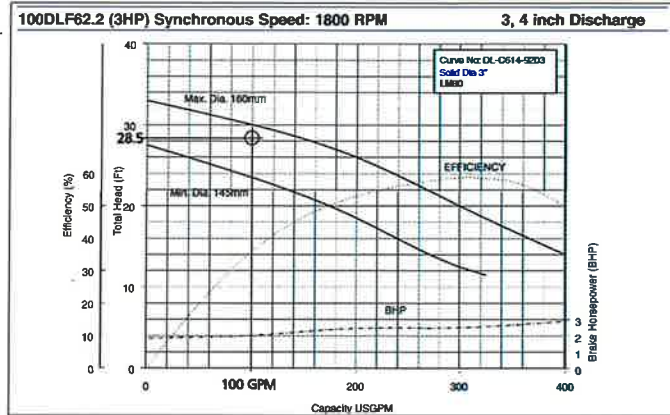
1. PROVIDE EXPLOSION-PROOF SUBMERSIBLE SEWAGE PUMPS SUITABLE FOR CONTINUOUS DUTY OPERATION UNDERWATER WITHOUT LOSS OF WATERTIGHT INTEGRITY TO A DEPTH OF 65 FEET. PUMP SYSTEM DESIGN SHALL INCLUDE A GUIDE RAIL SYSTEM BE SUCH THAT THE PUMP WILL BE AUTOMATICALLY CONNECTED TO THE DISCHARGE PIPING WHEN LOWERED INTO PLACE ON THE DISCHARGE CONNECTION. THE PUMP SHALL BE EASILY REMOVABLE FOR INSPECTION OR SERVICE, REQUIRING NO BOLTS, NUTS, OR OTHER FASTENERS TO BE DISCONNECTED, OR THE NEED FOR PERSONNEL TO ENTER THE WET WELL. THE MOTOR AND PUMP SHALL BE DESIGNED, MANUFACTURED, AND ASSEMBLED BY THE SAME MANUFACTURER.

2. MANUFACTURER: EBARA INTERNATIONAL CORPORATION (OR APPROVED EQUAL).

3. PUMP CHARACTERISTICS: PUMPS SHALL CONFORM TO THE FOLLOWING:

NUMBER OF UNITS	2
DESIGN FLOW (GPM)	100
DESIGN TDH (FT)	28.5
RPM	1740
MAXIMUM HP	3.0
VOLTAGE/HZ	240/60HZ

PUMP CURVE FOR EBARA MODEL
100DLF62.2 (3 HP)



4. PUMP CONSTRUCTION:

ALL MAJOR PARTS OF THE PUMPING UNIT(S) INCLUDING CASING, IMPELLER, SUCTION COVER, WEAR RINGS, MOTOR FRAME AND DISCHARGE ELBOW SHALL BE MANUFACTURED FROM GRAY CAST IRON, ASTM A-48 CLASS 30. CASTINGS SHALL HAVE SMOOTH SURFACES DEVOID OF BLOW HOLES OR OTHER CASTING IRREGULARITIES. CASING DESIGN SHALL BE CENTERLINE DISCHARGE WITH A LARGE RADIUS ON THE CUT WATER TO PREVENT CLOGGING. UNITS SHALL BE FURNISHED WITH A DISCHARGE ELBOW AND A 125 LB. FLAT FACE ANSI FLANGE. ALL EXPOSED BOLTS AND NUTS SHALL BE 304 STAINLESS STEEL. ALL MATING SURFACES OF MAJOR COMPONENTS SHALL BE MACHINED AND FITTED WITH NBR O-RINGS WHERE WATERTIGHT SEALING IS REQUIRED. MACHINING AND FITTING SHALL BE SUCH THAT SEALING IS ACCOMPLISHED BY AUTOMATIC COMPRESSION OF O-RINGS IN TWO PLANES AND O-RING CONTACT IS MADE ON FOUR SURFACES WITHOUT THE REQUIREMENT OF SPECIFIC TORQUE LIMITS. INTERNAL AND EXTERNAL SURFACES ARE PREPARED TO SPCC-VISI-SP-3-63 THEN COATED WITH A ZINC-CHROMATE PRIMER. THE EXTERNAL SURFACES ARE THEN COATED WITH A TNEC SERIES 46-465 COAL TAR PAINT.

- A. IMPELLERS:

THE IMPELLER SHALL BE A MIXED FLOW MULTI-VANE OPEN DESIGN. IT SHALL BE DYNAMICALLY BALANCED AND SHALL BE DESIGNED FOR SOLIDS HANDLING WITH A LONG THRU-OUT WITHOUT ACUTE TURNS. THE INLET EDGE OF THE IMPELLER VANES SHALL BE ANGLED TOWARD THE IMPELLER PERIPHERY SO AS TO FACILITATE THE RELEASE OF OBJECTS THAT MIGHT OTHERWISE CLOG THE PUMP. THE DESIGN SHALL ALSO INCLUDE BACK PUMP OUT VANES TO REDUCE THE PRESSURE AND ENTRY OF FOREIGN MATERIALS INTO THE MECHANICAL SEAL AREA. IN ADDITION, A LIP SEAL SHALL BE LOCATED BEHIND THE IMPELLER HUB TO FURTHER REDUCE THE ENTRY OF FOREIGN MATERIALS INTO THE SEAL AREA. IMPELLERS SHALL BE DIRECT CONNECTED TO THE MOTOR SHAFT WITH A SLIP FIT, KEY DRIVEN AND SECURED WITH AN IMPELLER BOLT. THE DESIGN SHALL INCLUDE A REPLACEABLE CAST IRON SUCTION COVER. THE SUCTION COVER SHALL BE DESIGNED SUCH THAT IT MAY BE ADJUSTED TO MAINTAIN WORKING CLEARANCES AND HYDRAULIC EFFICIENCIES.

- B. MECHANICAL SEALS:

UNITS SHALL BE DESIGNED TO INCLUDE A DOUBLE MECHANICAL SEAL IN A TANDEM ARRANGEMENT. EACH SEAL SHALL BE POSITIVELY DRIVEN AND ACT INDEPENDENTLY WITH IT'S OWN SPRING SYSTEM. THE UPPER SEAL OPERATES IN AN OIL BATH, WHILE THE LOWER SEAL IS LUBRICATED BY THE OIL FROM BETWEEN THE SHAFT AND THE SEAL FACES. THE LOWER SEAL IS ALSO IN CONTACT WITH THE PUMPAGE. THE OIL FILLED SEAL CHAMBER SHALL BE DESIGNED TO PREVENT OVER-FILLING AND INCLUDE AN ANTI-VORTEXING VANE TO INSURE PROPER LUBRICATION OF BOTH SEAL FACES. LOWER FACE MATERIALS SHALL BE SILICON CARBIDE, UPPER FACES CARBON VS. CERAMIC, NBR ELASTOMERS, AND 304SS HARDWARE. SEAL SYSTEM SHALL NOT RELY ON PUMPING MEDIUM FOR LUBRICATION.

5. MOTOR CONSTRUCTION:

THE PUMP MOTOR SHALL BE AN AIR FILLED EXPLOSION-PROOF INDUCTION TYPE WITH A SQUIRREL CAGE ROTOR, SHELL TYPE DESIGN, BUILT TO NEMA MG-1, DESIGN B SPECIFICATIONS. STATOR WINDINGS SHALL BE COPPER, INSULATED WITH MOISTURE RESISTANT CLASS H INSULATION, RATED FOR 356 F (180 C). THE STATOR SHALL BE DIPPED AND BAKED THREE TIMES IN CLASS H VARNISH AND HEAT SHRUNK FITTED INTO THE STATOR HOUSING. ROTOR BARS AND SHORT CIRCUIT RINGS SHALL BE MANUFACTURED OF CAST ALUMINUM. MOTOR SHAFT SHALL BE ONE PIECE AISI403 SS MATERIAL, ROTATING ON TWO PERMANENTLY LUBRICATED BALL BEARINGS DESIGNED FOR A MINIMUM B-10 LIFE OF 60,000 HOURS. MOTOR SERVICE FACTOR SHALL BE 1.15 AND CAPABLE OF UP TO 20 STARTS PER HOUR. THE MOTOR SHALL BE DESIGNED FOR CONTINUOUS DUTY PUMPING AT A MAXIMUM SUMP TEMPERATURE OF 104 F. VOLTAGE AND FREQUENCY TOLERANCES SHALL BE A MAXIMUM 10 / 5% RESPECTIVELY. MOTOR OVER TEMPERATURE PROTECTION SHALL BE PROVIDED BY THREE MINIATURE THERMAL PROTECTORS (ONE PER PHASE) EMBEDDED IN THE WINDINGS. MECHANICAL SEAL FAILURE PROTECTION SHALL BE PROVIDED BY A MECHANICAL FLOAT SWITCH LOCATED IN A CHAMBER ABOVE THE SEAL. THIS SWITCH SHALL BE COMPRISED OF A MAGNETIC FLOAT THAT ACTUATES A DRY REED SWITCH ENCAPSULATED WITHIN THE STEM. SHOULD THE MECHANICAL SEAL FAIL, LIQUID SHALL BE DIRECTED INTO THE FLOAT CHAMBER, IN WHICH THE RISING LIQUID ACTIVATES THE SWITCH OPENING THE NORMALLY CLOSED CIRCUIT. FOR UNITS 2-10 HP THE FLOAT BODY AND FLOAT SHALL BE A POLYPROPYLENE MATERIAL WITH A 316SS STOPPER. UNITS 15 HP AND GREATER, THE FLOAT SWITCH COMPONENTS SHALL BE 304SS. THE MOTOR SHALL BE NON OVERLOADING OVER THE ENTIRE SPECIFIED RANGE OF OPERATION AND BE ABLE TO OPERATE AT FULL LOAD INTERMITTENTLY WHILE UNSUBMERGED WITHOUT DAMAGE TO THE UNIT.

POWER CABLE JACKET SHALL BE MANUFACTURED OF AN OIL RESISTANT CHLOROPRENE RUBBER MATERIAL, DESIGNED FOR SUBMERGED APPLICATIONS. CABLE SHALL BE WATERTIGHT TO A DEPTH OF A LEAST 65'. THE CABLE ENTRY SYSTEM SHALL COMPRISE OF PRIMARY, SECONDARY AND TERTIARY SEALING METHODS. THE PRIMARY SEAL SHALL BE ACHIEVED BY A CYLINDRICAL ELASTOMERIC GROMMET COMPRESSED BETWEEN THE MOTOR COVER AND A 304SS WASHER. SECONDARY SEALING IS ACCOMPLISHED WITH A COMPRESSED O-RING MADE OF NBR MATERIAL. COMPRESSION AND SUBSEQUENT SEALING SHALL PRECLUDE SPECIFIC TORQUE REQUIREMENTS. THE SYSTEM SHALL ALSO INCLUDE TERTIARY SEALING TO PREVENT LEAKAGE INTO THE MOTOR HOUSING DUE TO CAPILLARY ACTION THROUGH THE INSULATION IF THE CABLE IS DAMAGED OR CUT. THE CABLE WIRES SHALL BE CUT, STRIPPED, RE-CONNECTED WITH A COPPER BUTT END CONNECTOR AND EMBEDDED IN EPOXY WITHIN THE CABLE GLAND. THIS PROVIDES A DEAD END FOR LEAKAGE THROUGH THE CABLE INSULATION INTO THE MOTOR JUNCTION AREA. THE CABLE ENTRY SYSTEM SHALL BE THE SAME FOR BOTH THE POWER AND CONTROL CABLES.

6. GUIDE RAIL SYSTEM:

DESIGN SHALL INCLUDE TWO (2) 304SS SCHEDULE 40 GUIDE RAILS SIZED TO MOUNT DIRECTLY TO THE QUICK DISCHARGE CONNECTOR, QDC, AT THE FLOOR OF THE WETWELL AND TO A GUIDE RAIL BRACKET AT THE TOP OF THE WETWELL BELOW THE HATCH OPENING. INTERMEDIATE GUIDE BRACKETS ARE RECOMMENDED FOR RAIL LENGTHS OVER 15 FEET.

THE QDC SHALL BE MANUFACTURED OF GRAY CAST IRON, ASTM A48 CLASS 30. IT SHALL BE DESIGNED TO ADEQUATELY SUPPORT THE GUIDE RAILS, DISCHARGE PIPING, AND PUMPING UNIT UNDER BOTH STATIC AND DYNAMIC LOADING CONDITIONS WITH SUPPORT LEGS THAT ARE SUITABLE FOR ANCHORING IT TO THE WETWELL FLOOR. THE FACE OF THE INLET QDC FLANGE SHALL BE PERPENDICULAR TO THE FLOOR OF THE WETWELL. THE DISCHARGE FLANGE OF THE QDC SHALL CONFORM TO ANSI B16.1 CLASS 125.

THE PUMP DESIGN SHALL INCLUDE AN INTEGRAL SELF-ALIGNING SLIDING BRACKET. SEALING OF THE PUMPING UNIT TO THE QDC SHALL BE ACCOMPLISHED BY THE SINGLE LINEAR DOWNWARD MOTION OF THE PUMP. THE ENTIRE WEIGHT OF THE PUMP UNIT SHALL BE GUIDED TO AND WEDGED TIGHTLY AGAINST THE INLET FLANGE OF THE QDC, MAKING METAL TO METAL CONTACT WITH THE PUMP DISCHARGE FORMING A SEAL WITHOUT THE USE OF BOLTS, GASKETS OR O-RINGS.

A STAINLESS STEEL LIFTING CHAIN OF ADEQUATE LENGTH FOR REMOVING AND INSTALLING THE PUMP UNIT IS RECOMMENDED. THE CHAIN SHALL HAVE A ROUND LINK WITH A 2-1/4" INSIDE DIAMETER EVERY TWO FEET. THIS LINK WILL ALLOW FOR SLIDING A PINCH BAR THROUGH THE LINK TO PICK THE CHAIN, MORE THAN ONCE IF NECESSARY, AT MULTIPLE INTERVALS DURING PUMP REMOVAL AND INSTALLATION.

7. PER ENV-WQ 705.07(a) SUBMERSIBLE PUMPS FOR SEWAGE PUMPING STATIONS SHALL CONFORM TO THE NEC REQUIREMENTS ADOPTED BY REFERENCE IN THE STATE BUILDING CODE PURSUANT TO RSA 155-A:1, IV, FOR INSTALLATION IN AREAS CLASSIFIED BY THE NEC AS CLASS I, DIVISION

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SECTION 33 36 00 - SANITARY SEWER SYSTEMS

PART 1 GENERAL

1.01 PRODUCTS

A. GENERAL: MATERIALS SHALL BE AS SPECIFIED HEREIN, EXCEPT THAT CONSIDERATION SHALL BE GIVEN TO OTHER PRODUCTS THAT MEET OR EXCEED THOSE SPECIFIED IF REQUESTED TEN (10) DAYS PRIOR TO DATE OF BID OPENING, IN ACCORDANCE WITH THE GENERAL CONDITIONS.

1.02 DESCRIPTION:

A. THE WORK UNDER THIS SECTION SHALL INCLUDE THE FURNISHING OF ALL MATERIAL, LABOR, EQUIPMENT AND SUPPLIES AND THE PERFORMANCE OF ALL OPERATIONS TO PROVIDE A COMPLETE WORKING SYSTEM AS REQUIRED BY THE DRAWINGS AND DETAILS AND AS SPECIFIED HEREIN, IN GENERAL, TO INCLUDE THE FOLLOWING ITEMS:

1. SANITARY SEWER SYSTEM FROM 5 FEET OUTSIDE THE BUILDING TO POINT OF TERMINATION AS SHOWN ON THE DRAWINGS.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE LOCAL DEPARTMENT OF PUBLIC WORKS AND NHDES.

1.03 RELATED WORK:

- A. SECTION 31 23 00 - EARTHWORK.
- B. SECTION 15401 - PLUMBING.

1.04 RELATED DOCUMENTS:

- A. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE MUNICIPALITY.
- B. ALL WORK FOR ITEMS NOT OTHERWISE COVERED BY 1.03A ABOVE SHALL CONFORM TO THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND BRIDGE CONSTRUCTION (LATEST EDITION).
- C. ALL WORK SHALL CONFORM TO THE PERMITS ISSUED BY THE STATE OF NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES.

1.05 PROJECT CONDITIONS:

- A. KNOWN UNDERGROUND AND SURFACE UTILITY LINES ARE INDICATED ON THE DRAWINGS. INFORMATION ON THE DRAWINGS RELATING TO EXISTING UTILITY LINES AND SERVICES IS FROM THE BEST SOURCE PRESENTLY AVAILABLE. ALL SUCH INFORMATION IS FURNISHED ONLY FOR INFORMATION AND IS NOT GUARANTEED. COORDINATE WITH UTILITY COMPANIES, DIG SAFE, AND THEIR CONTRACTORS, AND EXCAVATE TEST PITS AS REQUIRED TO DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES.
- B. TEST BORINGS HAVE BEEN PERFORMED BY OWNER'S SEPARATE CONTRACTOR. LOCATIONS OF TEST BORINGS ARE SHOWN ON THE DRAWINGS. NEITHER THE OWNER NOR THE ENGINEERS MAKE WARRANTY, EITHER EXPRESSED OR IMPLIED, OF ACCURACY OF BORING DATA AS A REPRESENTATION OF TYPICAL CONDITIONS. THE CONTRACTOR SHALL MAKE HIS/HER OWN INVESTIGATION OF SUBSURFACE CONDITIONS AND SATISFY HER/HIMSELF AS TO CONDITION THEREOF AND SHALL BASE HIS/HER BID IN SOLE RELIANCE THEREON. SUCH INVESTIGATION MAY INCLUDE, BUT IS NOT NECESSARILY LIMITED TO: ADDITIONAL TEST PITS, BORINGS. NO ALLOWANCE WILL BE MADE FOR THE CONTRACTOR'S FAILURE TO PERFORM INVESTIGATION NECESSARY TO FULLY IDENTIFY AND SATISFY HIM/HERSELF AS TO SUBSURFACE CONDITIONS WHICH COULD AFFECT THE WORK.
- C. PROTECT EXCAVATIONS BY SHORING, BRACING, SHEETING, UNDERPINNING, OR OTHER METHODS, AS REQUIRED TO PREVENT CAVE-INS OR LOOSE DIRT FROM ENTERING EXCAVATIONS. BARRICADE OPEN EXCAVATIONS AND POST WARNING LIGHTS AT WORK ADJACENT TO PUBLIC STREETS AND WALKS.
- D. UNDERPIN ADJACENT STRUCTURE(S), INCLUDING UTILITY SERVICE LINES, WHICH MAY BE DAMAGED BY EXCAVATION OPERATIONS.
- E. PROMPTLY REPAIR DAMAGE TO ADJACENT FACILITIES CAUSED BY SITE SEWER AND DRAINAGE OPERATIONS.
- F. PROMPTLY NOTIFY THE OWNER OF UNEXPECTED SUB-SURFACE CONDITION

1.06 QUALITY ASSURANCE:

- A. STANDARDS: COMPLY WITH STANDARDS SPECIFIED IN THIS SECTION. PROVIDE SHOP DRAWINGS TO THE OWNER OR OWNER'S REPRESENTATIVE.
- B. QUALIFICATIONS OF INSTALLERS: USE ADEQUATE NUMBERS OF SKILLED WORKERS WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND METHODS FOR PROPER PERFORMANCE OF THE WORK OF THIS SECTION.
- C. OBTAIN OWNER OR OWNER'S REPRESENTATIVE'S ACCEPTANCE OF INSTALLED AND TESTED SITE DRAINAGE SYSTEM PRIOR TO BACKFILLING.

1.07 SUBMITTALS:

- A. PRODUCT DATA:
 1. COMPLETE MATERIALS LIST OF ALL ITEMS PROPOSED TO BE FURNISHED AND INSTALLED UNDER THIS SECTION.
 2. MANUFACTURER'S SPECIFICATIONS AND OTHER DATA REQUIRED TO DEMONSTRATE COMPLIANCE WITH THE SPECIFIED REQUIREMENTS.
 3. MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
- B. TESTING AND INSPECTION REPORTS.
- C. PROVIDE SITE SEWER AND DRAINAGE RECORD DRAWINGS:
 1. LEGIBLY MARK DRAWINGS TO RECORD ACTUAL CONSTRUCTION.
 2. INDICATE HORIZONTAL AND VERTICAL LOCATIONS REFERENCED TO PERMANENT SURFACE IMPROVEMENTS.
 3. IDENTIFY FIELD CHANGES OF DIMENSIONS AND DETAILS AND CHANGES MADE BY CHANGE ORDER.

1.08 COOPERATION AND COORDINATION WITH OTHER TRADES:

- A. THE WORK SHALL BE SO PERFORMED THAT THE PROGRESS OF THE ENTIRE PROJECT CONSTRUCTION, INCLUDING ALL OTHER TRADES, SHALL NOT BE DELAYED AND NOT INTERFERED WITH. MATERIALS AND APPARATUS SHALL BE INSTALLED AS FAST AS CONDITIONS WILL PERMIT AND MUST BE INSTALLED PROMPTLY WHEN AND AS DIRECTED.
- B. ALL WORK SHALL BE COORDINATED WITH OTHERS TRADES. THE WORK IN THIS SECTION SHALL AT NO TIME INTERRUPT THE NORMAL OPERATIONS OF EXISTING BUILDINGS.

PART 2 PRODUCTS

- 2.01 POLYVINYL CHLORIDE PIPE (PVC):
 - A. PVC PIPE SHALL BE MADE FROM VIRGIN PLASTIC AND SHALL CONFORM TO ASTM D1784. SOLID PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM D3034 SDR 35. PERFORATED PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM D2729 SDR 35.
 - B. STANDARD NOMINAL LENGTHS OF PIPE SHALL BE A MINIMUM OF 10 FEET.
 - C. THE PIPE FITTINGS SHALL BE AS UNIFORM AS COMMERCIALLY PRACTICAL IN COLOR, OPACITY, DENSITY AND OTHER PHYSICAL PROPERTIES.
 - D. PIPE SHALL BE TESTED IN ACCORDANCE WITH SECTION 10 OF ASTM D2412 STANDARD METHOD OF "TEST FOR EXTERNAL LOADING PROPERTIES OF PLASTIC PIPE BY PARALLEL-PLATE LOADING". THE MINIMUM VALUE OF PIPE STIFFNESS AT 5% DEFLECTION COMPUTED FROM DATA OBTAINED FROM THE ABOVE TESTING PROCEDURE SHALL BE IN ACCORDANCE WITH ASTM D2412.
 - E. EACH PIPE AND ALL COUPLINGS AND FITTINGS SHALL BE CLEARLY MARKED ON THE OUTSIDE SURFACE WITH THE NAME OF THE MANUFACTURER, ASTM DESIGNATION WITH TYPE AND GRADE, AND NOMINAL DIAMETER.

2.02 DUCTILE IRON (D.I.) SEWER PIPE:

- A. ANS/AWWA C151/ A21.51 CLASS 52 WITH CEMENT LINING CONFORMING TO ANSI A21.4. PRESSURE CLASS SHALL BE ANSI PRESSURE CLASS 350. PROTECTIVE COATING ON EXTERIOR SHALL BE APPROVED BITUMASTIC OR COAL TAR ENAMEL CONFORMING TO ANSI A21.4 AND A21.10
- B. FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON SHORT BODY FITTINGS CONFORMING TO ANSI A21.1 WITH CEMENT LINING CONFORMING TO ANSI A21.4. THICKNESS CLASS SHALL BE ANSI PRESSURE CLASS 350.
- C. LENGTH AND JOINTS - DUCTILE IRON PIPE LENGTHS SHALL GENERALLY BE AS LONG AS POSSIBLE BUT SHALL HAVE A BELL-AND-SPIGOT OR SHALL HAVE FURNISHED WITH IT A SEPARATE JOINTING SLEEVE OR COUPLING WITH RUBBER RINGS COMPRESSED INTO PLACE TO MAKE A WATERTIGHT CLOSURE. JOINTS SHALL BE SEALED WITH A RUBBER RING GASKET AND SHALL BE OF A COMPOSITION AND TEXTURE WHICH WILL ENDURE PERMANENTLY UNDER THE CONDITIONS LIKELY TO BE IMPOSED BY THIS USE, AND SHALL CONFORM TO ASTM SPECIFICATIONS C-361 AMENDED TO DATE. JOINTS SHALL BE "PUSH-ON" TYPE COMPLYING WITH ANSI A21.1.

2.03 HIGH DENSITY POLYETHYLENE (HDPE)

- A. FORCE MAINS AND LOW PRESSURE SEWERS SHALL BE TREATED AS GRAVITY SEWERS FOR PURPOSES OF FOUNDATION BEDDING AND BACKFILL REQUIREMENTS.
- B. HOPE PIPE USED FOR FORCE MAINS AND LOW PRESSURE SEWERS SHALL CONFORM TO ASTM D3035-03A.

2.04 CAST IRON SOIL PIPE:

- A. CAST IRON SOIL PIPE SHALL BE ASTM A 74, EXTRA HEAVY TYPE, INSIDE NOMINAL DIAMETER AS SPECIFIED ON CONSTRUCTION DRAWINGS, BELL AND SPIGOT END. JOINTS SHALL BE IN CONFORMANCE WITH AWWA C111, RUBBER GASKET JOINT DEVICES.

2.05 PIPE JOINTS AND FITTINGS:

- A. DUCTILE IRON FITTINGS SHALL BE MECHANICAL JOINTS. ALL FITTINGS SHALL BE RESTRAINED OR RODEED.
- B. DUCTILE IRON FITTINGS SHALL CONFORM TO ANSI 21.10 AND 21.11 (AWWA C110 AND AWWA C111).
- C. HOPE AND PVC FITTINGS SHALL BE WATERTIGHT. STRUCTURAL INTEGRITY AND JOINT CONFIGURATION SHALL

BE IDENTICAL TO THAT OF PIPE.

2.06 SEWER MANHOLES:

- A. PRECAST CONCRETE MANHOLE CATCH BASIN, LEACHING CATCH BASIN BASE AND LEACHING PIT SECTIONS, RISER SECTIONS AND CONE SECTIONS CONSTRUCTED OF A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, AIR ENTRAINED CONCRETE WITH HOOP REINFORCING AND LIFTING HOLES. SECTIONS SHALL BE FURNISHED WITH "O" RING RUBBER GASKETS. LIFTING HOLES IN ALL SECTIONS SHALL BE FILLED WITH NONSHRINK MORTAR AFTER SECTIONS ARE IN PLACE.
- B. CLASS 'A' CONCRETE: ASTM C94. ALL CONCRETE SHALL BE CLASS A UNLESS STATED OTHERWISE.
 1. STRENGTH : 3000 PSI @ 28 DAYS
 2. CEMENT CONTENT : TYPE II, 6.5 SACKS/CY (MIN)
 3. W/C RATIO : 0.464 (MAX)
 4. FINE AGGREGATE : ASTM C33
 5. COARSE AGGREGATE : ASTM C33 SIZE #57
- C. CLASS 'B' CONCRETE:
 1. STRENGTH : 3000 PSI @ 28 DAYS
 2. CEMENT CONTENT : TYPE II, 6.0 SACKS/CY (MIN)
 3. W/C RATIO : 0.488 (MAX)
 4. FINE AGGREGATE : ASTM C33
 5. COARSE AGGREGATE : ASTM C33 SIZE #67
- D. REINFORCING STEEL: ASTM A615, A616, OR A165.
- E. PRECAST CONCRETE: ASTM C478 EXCEPT AS SPECIFIED OTHERWISE.
- F. TABLES AND INVERTS SHALL BE CONSTRUCTED OF BRICK, SHALL HAVE THE SAME SHAPE OF THE PIPE THAT ARE CONNECTED AND ANY CHANGE IN SIZE OR DIRECTION SHALL BE GRADUAL AND EVEN.
- G. PRECAST STRUCTURES SHALL BE ABLE TO WITHSTAND H-20 LOADING.
- H. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF AN OVERLAPPING TYPE, SEALED FOR WATER-TIGHTNESS USING A DOUBLE ROW OF AN ELASTOMERIC OR MASTIC-LIKE SEALANT.
- I. PIPE TO MANHOLE JOINTS SHALL BE AS FOLLOWS:
 1. ELASTOMERIC, RUBBER SLEEVE WITH WATERTIGHT JOINTS AT THE MANHOLE OPENING AND PIPE SURFACES;
 2. CAST INTO THE WALL OR SECURED WITH STAINLESS STEEL CLAMPS;
 3. ELASTOMERIC SEALING RING CAST IN THE MANHOLE OPENING WITH SEAL FORMED ON THE SURFACE OF THE PIPE BY COMPRESSION OF THE RING.
- J. PIPE TO MANHOLE JOINTS SHALL BE ONE OF THE FOLLOWING OR APPROVED EQUAL:
 - a. KOR - N - SEAL
 - b. LOCK JOINT
 - c. PRESS WEDGE II

2.07 BRICK MASONRY:

- A. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C 150-05, TYPE H.
- B. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 "STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES".
- C. SAND SHALL BE CLEAN, HARD, DURABLE PARTICLES AND WITH NOT MORE THAN 5% IN VOLUME OF MICA, CLAY AND OTHER DELETERIOUS MATERIALS. THE SAND SHALL BE GRADED FROM FINE TO COURSE SO THAT WHEN TESTED DRY, IT WILL CONFORM TO THE LIMITS OF ASTM C33-03 "STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES".
- D. MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION;
 1. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
 - a. 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
 - b. 4.5 PARTS SAND, ONE PART CEMENT AND 0.5 PART HYDRATED LIME
- E. WATER SHALL BE FREE FROM OILS, ACIDS, ALKALIS OR ORGANIC MATTER, AND SHALL BE CLEAN AND FRESH.
- F. BRICK SHALL BE SOUND, HARD AND UNIFORMLY BURNED, REGULAR AND UNIFORM IN SHAPE AND SIZE, OF COMPACT TEXTURE AND SATISFACTORY TO THE OWNER OR OWNER'S REPRESENTATIVE. BRICKS SHALL COMPLY WITH ASTM C32, GRADE SS. ONLY WHOLE BRICK SHALL BE USED UNLESS OTHERWISE PERMITTED.

2.08 MANHOLE STEPS: (NOT USED)

2.09 MANHOLE FRAMES AND COVERS:

- A. CASTINGS SHALL BE OF GOOD QUALITY, STRONG, TOUGH EVENLY GRAINED, SMOOTH CAST IRON, FREE FROM SCALE, LUMPS, BLISTERS, SAND HOLES, AND DEFECTS OF ANY KIND. CASTINGS SHALL BE THOROUGHLY CLEANED AND ALL FINISHED SURFACES SHALL BE MACHINED TO A TRUE PLANED SURFACE AND SHALL SEAT AT ALL POINTS WITHOUT ROCKING.
- B. CASTINGS SHALL NOT BE ACCEPTABLE IF THE ACTUAL WEIGHT IS LESS THAN 95% OF THE THEORETICAL WEIGHT OF THE CASTINGS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL FURNISH INVOICES TO THE OWNER SHOWING TRUE WEIGHTS, CERTIFIED BY THE SUPPLIER.
- C. CAST IRON SHALL CONFORM TO ASTM A48, CLASS 30 AND FRAMES, COVERS AND GRATES SHALL BE ABLE TO WITHSTAND H-20 LOADING.
- D. PROVIDE A 30 INCH DIAMETER CLEAR OPENING. SEWER MANHOLE COVERS SHALL HAVE THE WORD "SEWER" IN 3" LETTERS CAST INTO THE TOP SURFACE.

2.10 FORCE MAINS

- A. FORCE MAINS FOR CONSTANT SPEED PUMPS SHALL BE SIZED TO YIELD A CLEANSING VELOCITY OF 3 FEET PER SECOND OR GREATER AT DESIGN PUMP CAPACITY.
- B. FORCE MAINS SHALL ENTER THE GRAVITY SEWER SYSTEM AT THE FLOW LINE OF THE RECEIVING MANHOLE.
- C. TO PREVENT AIR LOCKING, FORCE MAINS SHALL BE PROVIDED WITH AN AUTOMATIC AIR RELIEF VALVE AT EACH HIGH POINT, INSTALLED WITHIN A MANHOLE STRUCTURE THAT MEETS THE DESIGN REQUIREMENTS OF ENV-WQ 704.12 THROUGH ENV-WQ 704.17.
- D. FORCE MAINS SHALL BE PROVIDED WITH A DRAINAGE BLOW-OFF AT EACH LOW POINT THAT:
 - *HAS A PROPERLY VALVED CONNECTION FOR A VACUUM TRUCK OR OTHER SUITABLE CONTAINMENT DEVICE;
 - *IS INSTALLED WITHIN A MANHOLE STRUCTURE THAT MEETS THE DESIGN REQUIREMENTS OF ENV-WQ 704.12 THROUGH ENV-WQ 704.17, WITH SUFFICIENT SPACE FOR HANDLING THE DISPLACED WASTE WITHOUT DANGER OF POLLUTION OR HEALTH HAZARD.
- E. FORCE MAINS SHALL BE DESIGNED IN ACCORDANCE WITH ENV-WQ 704.07, CONSTRUCTED WITH MATERIALS AS SPECIFIED IN ENV-WQ 704.08, AND TESTED AS SPECIFIED IN ENV-WQ 704.09.
- F. THRUST BLOCKS MADE FROM INORGANIC, CORROSION-RESISTANT MATERIAL SHALL BE PLACED AT ALL BENDS, ELBOWS, TEES, AND JUNCTIONS.
- G. FORCE MAINS SHALL BE DESIGNED TO WITHSTAND HYDROSTATIC PRESSURES OF AT LEAST 2.5 TIMES THE DESIGN TOTAL DYNAMIC HEAD;

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS:

- A. OBTAIN DETAILED INFORMATION FROM THE MANUFACTURERS OF APPARATUS AS TO THE PROPER METHOD OF INSTALLING AND CONNECTING SAME.
- B. CAREFULLY STORE MATERIALS AND EQUIPMENT WHICH ARE NOT IMMEDIATELY INSTALLED AFTER DELIVERY. CLOSE OPEN ENDS OF WORK WITH TEMPORARY COVERS OR PLUG DURING CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.
- C. ANY DEFECTIVE PIPE, FITTING OR DRAIN APPARATUS THAT IS DISCOVERED AFTER IT HAS BEEN INSTALLED OR HAS BEEN INSTALLED IMPROPERLY SHALL BE REMOVED AND REPLACED WITH NON-DEFECTIVE PARTS TO THE SATISFACTION OF THE OWNER OR OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
- D. TRENCHES SHALL BE KEPT FREE OF WATER AND AS DRY AS POSSIBLE DURING THE INSTALLATION OF THE BEDDING MATERIAL, PIPE AND JOINTING FOR AS LONG A PERIOD AS REQUIRED. PIPE SHALL NOT BE LAID IN WATER OR WHEN TRENCH CONDITIONS ARE UNSUITABLE FOR THE WORK.
- E. PROVIDE ALL INSPECTION AGENTS AT LEAST 24 HOURS NOTICE PRIOR TO WORK BEGINNING. INSPECTOR SHALL BE ON-SITE DURING ANY/ALL EXCAVATION, INSTALLATION, BACKFILL, AND TESTING OF ALL SEWERAGE PIPES, MANHOLES, AND APPURTENANCES.
- F. NO BACKFILLING SHALL TAKE PLACE, UNLESS OTHERWISE ORDERED BY THE OWNER OR OWNER'S REPRESENTATIVE, UNTIL THE INSPECTION HAS BEEN COMPLETED.
- G. EXCAVATION, BACKFILL AND PIPE BEDDING MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 31 23 00, EARTHWORK.

3.02 LAYING PIPE:

- A. THIS WORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF DRAIN LINES IN ACCORDANCE WITH THESE SPECIFICATIONS, THE MUNICIPALITY AND OTHER AUTHORITIES HAVING JURISDICTION.
- B. ALL PIPE SHALL BE SOUND AND CLEAN BEFORE INSTALLING. WHEN LAYING OF PIPE IS NOT IN PROGRESS,

INCLUDING LUNCH TIME, THE OPEN ENDS OF THE PIPE SHALL BE CLOSED BY WATERTIGHT PLUGS OR OTHER APPROVED MEANS.

- C. THE FULL LENGTH OF PIPE SHALL REST SOLIDLY ON THE UNDISTURBED TRENCH BOTTOM, WITH RECESSES EXCAVATED TO ACCOMMODATE BELLS, COUPLINGS AND JOINTS. BLOCKING WILL NOT BE PERMITTED.

P. PIPE SHALL BE LAID TRUE TO THE SPECIFIED LINES AND GRADES. THE BELL END SHALL BE TOWARD THE RISING GRADE AND EACH SECTION OF PIPE SHALL HAVE A FIRM BEARING THROUGHOUT ITS LENGTH. MATERIAL PLACED AROUND AND UNDER THE PIPE SHALL BE FREE OF STONES. ROCKS SHALL NOT BE ROLLED INTO TRENCHES AND ALLOWED TO DROP ONTO PIPE. PIPE SHALL BE BEDDED IN 2" STONE TO SPRING LINE OF PIPE AND THEN BURIED IN CLEAN SAND FREE OF STONES. STONE AND SAND SHALL BE IN ACCORDANCE WITH ENV-WQ 704.11(c) AND (b).

- E. WHEN PIPE CUTTING IS REQUIRED AND APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE, THE PIPE MATERIAL SHALL BE CUT BY USING A SAW OR MILLING PROCESS, APPROVED BY THE PIPE MANUFACTURER AND NOT BY ANY IMPACT DEVICE, SUCH AS A HAMMER AND CHISEL, TO BREAK THE PIPE. THE PIPE SHALL BE CUT, NOT BROKEN. THE CUT END OF THE PIPE SHALL BE SQUARE TO THE AXIS OF THE PIPE AND ANY ROUGH EDGES GROUND SMOOTH.

- F. INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPE SHALL BE IN ACCORDANCE WITH ASTM D2321 AND AS RECOMMENDED BY THE PIPE MANUFACTURER. BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 31 23 00, EARTHWORK. BACKFILL SHALL BE PLACED IN SIX INCH LIFTS AND COMPACTED TO 95% MINIMUM DENSITY AS PER AASHTO T99. CARE SHOULD BE TAKEN TO AVOID ANY USE OF FRACTURED STONE IN BACKFILL EXCEEDING TWO INCHES (2").

- G. THE CONTRACTOR MAY USE A LASER BEAM TO ASSIST IN SETTING THE PIPE. PROVIDED HE CAN DEMONSTRATE SATISFACTORY SKILL IN ITS USE. THE USE OF STRING LEVELS, HAND LEVELS, CARPENTERS LEVELS OR OTHER RELATIVELY CRUDE DEVICES FOR TRANSFERRING GRADE OR SETTING PIPE WILL NOT BE PERMITTED.

- H. WHEN LAYING REINFORCED CONCRETE PIPE, BEDDING SHALL CONSIST OF CAREFULLY PREPARING AND SHAPING A BED OF FINE GRANULAR MATERIAL TO FIT THE LOWER 15 PERCENT OF THE EXTERNAL HEIGHT OF THE PIPE WITH A MINIMUM OF 4 IN. UNDER THE BOTTOM OF THE PIPE. RECESS SHALL BE EXCAVATED FOR THE BELLS OF THE PIPE AS SOON AS THE EXCAVATION IS COMPLETED AND THE SPECIFIED PIPE BEDDING PROVIDED, THE CONTRACTOR SHALL FIRMLY BED THE PIPE TO CONFORM ACCURATELY TO THE LINE AND GRADE INDICATED ON THE PLANS. NO BLOCKING WILL BE PERMITTED UNDER THE PIPE, AS SOON AS THE PIPE IS IN PLACE, FINE GRANULAR MATERIAL SHALL BE PLACED AND COMPACTED TO THE MID-DIAMETER OF THE PIPE. THE REMAINING BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 31 23 00, EARTHWORK. BACKFILL SHALL BE PLACED IN SIX INCH LIFTS AND COMPACTED TO 95% MINIMUM DENSITY AS PER AASHTO T99.

3.03 SEWER MANHOLES:

- A. SEWER MANHOLES, DRAIN MANHOLES, CATCH BASINS AND INSPECTION MANHOLES SHALL BE BUILT TO THE LINES, GRADES, DIMENSIONS AND DESIGN SHOWN ON THE PLANS WITH THE NECESSARY FRAMES, COVERS AND GRATES.
- B. MANHOLE AND CATCH BASIN BASES SHALL BE PLACED ON 6 INCHES OF COMPACTED BEDDING MATERIAL.
- C. PRECAST SECTIONS SHALL BE SET SO AS TO BE VERTICAL AND IN TRUE ALIGNMENT WITH A 1/4 INCH MAXIMUM TOLERANCE TO BE ALLOWED. THE PRECAST SECTIONS SHALL BE INSTALLED IN A MANNER THAT WILL RESULT IN A WATERTIGHT JOINT.
- D. WHERE HOLES MUST BE CUT IN THE PRECAST SECTIONS TO ACCOMMODATE PIPES, CUTTING SHALL BE DONE PRIOR TO SETTING THEM IN PLACE TO PREVENT ANY SUBSEQUENT JARRING WHICH MAY LOOSEN THE JOINTS.

3.04 BRICKWORK:

- A. MORTAR SHALL BE MIXED ONLY IN SUCH QUANTITY AS MAY BE REQUIRED FOR IMMEDIATE USE AND USED BEFORE THE INITIAL SET HAS TAKEN PLACE. MORTAR SHALL NOT BE RETAINED FOR MORE THAN ONE HOUR AND SHALL BE CONSISTENTLY WORKED OVER WITH A SHOVEL OR HOE UNTIL USED.
- B. BRICK MASONRY SHALL BE PROTECTED FROM TOO RAPID DRYING BY APPROVED MEANS AND SHALL BE PROTECTED FROM WEATHER AND FROST AS REQUIRED.
- C. BRICKS SHALL BE CLEANED AND THOROUGHLY WETTED SHORTLY BEFORE THEY ARE PUT INTO THE WORK, AND EACH BRICK SHALL BE LAID IN A FULL BED OF MORTAR WITHOUT REQUIRING SUBSEQUENT GROUTING OR FILLING. JOINTS BETWEEN BRICKS SHALL NOT EXCEED 1/2 INCH AND SHALL BE POINTED.

3.05 FRAMES AND COVERS:

- A. MANHOLE FRAMES - SHALL BE SET WITH THE TOPS CONFORMING ACCURATELY TO THE GRADE OF THE PAVEMENT OR FINISHED GROUND SURFACE OR AS INDICATED ON THE DRAWINGS. FRAMES SHALL BE SET CONCENTRIC WITH THE TOP OF THE MASONRY AND IN A FULL BED OF MORTAR SO THAT THE SPACE BETWEEN THE TOP OF THE MANHOLE MASONRY AND THE BOTTOM FLANGE OF THE FRAME SHALL BE COMPLETELY FILLED AND MADE WATERTIGHT. A THICK RING OF MORTAR EXTENDING TO THE OUTER EDGE OF THE MASONRY SHALL BE PLACED ALL AROUND AND ON THE TOP OF THE BOTTOM FLANGE. THE MORTAR SHALL BE SMOOTHLY FINISHED AND HAVE A SLIGHT SLOPE TO SHED WATER AWAY FROM THE FRAME.
- B. MANHOLE COVERS SHALL BE LEFT IN PLACE IN THE FRAMES ON COMPLETION OF OTHER WORK AT THE MANHOLES.
- C. A MAXIMUM OF 12" OF BRICK AND MORTAR SHALL BE ALLOWED FOR GRADE ADJUSTMENT.
- D. COVERS AND GRATES SHALL BE SET IN THE FRAMES, SEATING BEING CLEANED BEFORE COVERS AND GRATES ARE SET.

3.06 SEWER SERVICE CONNECTIONS:

- A. THE MINIMUM SIZE FOR THE BUILDING SEWER SERVICE CONNECTION SHALL BE 6".
- B. THE MINIMUM SLOPE FOR THE BUILDING SEWER SERVICE SHALL BE 1/4" PER FOOT, UNLESS OTHERWISE APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- C. BEFORE BACKFILLING, THE CONTRACTOR SHALL NOTIFY THE INSPECTOR SO THAT HE CAN MAKE THE NECESSARY MEASUREMENTS TO LOCATE THE OPENING LATER. IN ADDITION, AN APPROVED FERROUS ROD OR PIPE SHALL BE PLACED OVER THE PLUGGED OPENING AT THE PROPERTY LINE, EXTENDING TO WITHIN 2 INCHES OF THE FINAL GROUND SURFACE.
 1. PROXIMITY TO WATER LINES:
 - a. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM AND A SEWER OR SEWER APPURTENANCE WHICH WOULD PERMIT THE PASSAGE OF SEWAGE OR POLLUTED WATER INTO THE POTABLE SUPPLY. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER OR SEWER MANHOLE.
 - 1) NO SEWER SHALL BE LOCATED WITHIN THE WELL PROTECTIVE RADII ESTABLISHED IN ENV-WQ 300 FOR ANY PUBLIC WATER SUPPLY WELLS OR WITHIN 100 FEET OF ANY PRIVATE WATER SUPPLY WELL.
 - 2) SEWERS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.
 - 3) A DEVIATION FROM THE SEPARATION REQUIREMENTS OF (1) OR (2) ABOVE SHALL BE ALLOWED WHERE NECESSARY TO AVOID CONFLICT WITH SUBSURFACE STRUCTURES, UTILITY CHAMBERS, AND BUILDING FOUNDATIONS, PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENTS SPECIFIED IN ENV-WQ 704.08.
 - b. WHENEVER SEWERS MUST CROSS WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AS FOLLOWS:
 - a. VERTICAL SEPARATION OF THE SEWER AND WATER MAIN SHALL BE NOT LESS THAN 18 INCHES, WITH WATER ABOVE SEWER; AND
 - d. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATER MAIN.
 - e. HOWEVER, SHOULD CONSTRUCTION OPERATIONS REVEAL OR EXPOSE A WATERLINE MAIN OR SERVICE RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FEET HORIZONTALLY FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICABLE TO RELOCATE THE SEWER, THE FOLLOWING METHODS OF PROTECTION MUST BE EMPLOYED:
 - 1) IF THE ABOVE SEPARATION CANNOT BE ACHIEVED, THE SEWER SHALL BE DUCTILE IRON PIPE OF THE SAME SIZE SHALL BE UTILIZED. APPROPRIATE MANUFACTURED FITTINGS SHALL BE EMPLOYED TO ADAPT THE IRON PIPE TO THE CONTRACT SEWER PIPE.
 - 2) WHENEVER THE WATERLINE CROSSES OVER THE NEW SEWER WITH LESS THAN 18 INCHES OF SEPARATION, THE SEWER PIPE FOR A DISTANCE OF 6 FEET ON EACH SIDE OF THE WATERLINE SHALL BE CLASS 52 DUCTILE IRON PIPE. APPROPRIATE MANUFACTURED FITTINGS SHALL BE EMPLOYED TO ADAPT THE IRON PIPE TO THE CONTRACT SEWER PIPE. AS AN ALTERNATIVE, THE WATERLINE MAY BE RAISED, IF FEASIBLE, TO ACHIEVE THE REQUIRED SEPARATION.
 - 3) SHOULD THE WATERLINE IN EITHER SITUATION BE AT OR BELOW THE SEWER ELEVATION, THE WATERLINE OR THE SEWER MUST BE RELOCATED TO ACHIEVE 10 FT. SEPARATION OR THE WATERLINE RAISED.

- b. TEST EQUIPMENT:

NECESSARY EQUIPMENT TO PERFORM AIR TEST IN ACCORDANCE WITH SPECIFICATIONS SHALL BE PROVIDED BY CONTRACTOR. TEST GAUGE SHALL PREFERABLY HAVE INCREMENTAL DIVISION OF 0.10 PSI AND HAVE ACCURACY OF AT LEAST 0.04 PSI. IN NO CASE SHALL TEST GAUGE BE USED WHICH HAS INCREMENTAL DIVISIONS OF GREATER THAN 0.25 PSI. GAUGE SHALL BE OF SUFFICIENT SIZE IN ORDER TO DETERMINE THIS ACCURACY.
7. SUBMITTALS:

FURNISH 1 COPY OF GRAVITY SEWER AND MANHOLE TEST RESULTS TO OWNER AND GOVERNING AGENCY UPON COMPLETION OF GRAVITY SEWER SYSTEM BACKFILLING OPERATIONS.

3.08 SANITARY MANHOLE TESTING:

- A. MANHOLES SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST.
- B. THE MANHOLE VACUUM TEST SHALL CONFORM TO THE FOLLOWING:
 - C. THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES HG; AND
 1. THE MINIMUM ACCEPTABLE TEST HOLD TIME FOR A 1-INCH HG PRESSURE DROP TO 9 INCHES HG SHALL BE:
 - a. NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP IN DEPTH;
 - b. NOT LESS THAN 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP; AND
 - c. NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP;
 2. THE MANHOLE SHALL BE REPAIRED AND RETESTED IF THE TEST HOLD TIMES FAIL TO ACHIEVE THE ACCEPTANCE LIMITS SPECIFIED ABOVE.
 3. FOLLOWING COMPLETION OF THE LEAKAGE TEST, THE FRAME AND COVER SHALL BE PLACED ON THE TOP OF THE MANHOLE OR SOME OTHER MEANS USED TO PREVENT ACCIDENT ENTRY BY UNAUTHORIZED PERSONS, CHILDREN, OR ANIMALS, UNTIL THE CONTRACTOR IS READY TO MAKE FINAL ADJUSTMENT TO GRADE.
 4. NO INVERTS SHALL BE INSTALLED UNTIL MANHOLE TESTING HAS BEEN SATISFACTORILY COMPLETED.

- 3.09 FORCE MAIN TESTING: PER ENV-WQ 704.09, FORCE MAINS AND PRESSURE SEWERS SHALL BE TESTED IN ACCORDANCE WITH SECTION 5 OF THE AWWA C600, "INSTALLATION OF CAST IRON WATER MAINS AND THEIR APPURTENANCES" STANDARD IN EFFECT WHEN THE TEST IS CONDUCTED AT A PRESSURE EQUAL TO THE GREATER OF 150 PERCENT OF THE DESIGN OPERATING TOTAL DYNAMIC HEAD OR AT LEAST 100 PSI.

- E. THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5% OF AVERAGE INSIDE DIAMETER. A RIGID BALL OR MANDREL WITH A DIAMETER OF AT LEAST 95% OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.

- F. INSPECTION AND TESTING: - UPON COMPLETION OF THE INSTALLATION AND BACKFILLING PORTIONS OF THE SANITARY SEWER, THE PIPE SHALL BE INSPECTED BY THE VISUAL AND AIR TEST METHODS SUBSEQUENTLY DESCRIBED, OR AS REQUIRED BY THE TOWN DPW AND THE NHDES. THIS INSPECTION AND TESTING SHALL BE UNDERTAKEN AS THE WORK PROGRESSES. THE ENGINEER SHALL BE NOTIFIED IN ADVANCE OF SUCH INSPECTION AND TESTING AND THE CONTRACTOR SHALL PROVIDE ALL FACILITIES, MATERIALS, EQUIPMENT AND LABOR REQUIRED FOR SUCH TESTING. SUCH INSPECTION AND TESTING SHALL BE A PREREQUISITE FOR ACCEPTANCE OF ALL WORK.

1. VISUAL INSPECTION: - AN INSPECTION OF THE INTERIOR OF THE COMPLETED SANITARY SEWER PIPE BY DIRECT VISUAL INSPECTION SHALL BE MADE FOR ALL PIPE INSTALLED FROM MANHOLE TO MANHOLE AND FOR SERVICE LATERALS. ANY LIGHTS, EQUIPMENT OR LABOR NECESSARY FOR SUCH INSPECTION SHALL BE PROVIDED BY THE CONTRACTOR. CAMERA WORK TO BE PERFORMED BY NASSCO CERTIFIED CONTRACTOR.

ANY FOREIGN MATERIAL FOUND IN THE INTERIOR OF THE SEWER, ANY DIRT, DEBRIS OR OTHER OBJECTS SHALL BE REMOVED BY THE CONTRACTOR. VISIBLE DEFECTS SUCH AS BROKEN PIPE SECTIONS, IMPROPERLY INSTALLED GASKETS, PROJECTING CONNECTIONS, CRACKS, VISIBLE LEAKS OR OTHER DEFECTS SHALL BE NOTED, CORRECTED AND THE PIPE RE-INSPECTED.

2. AIR TESTING OF MAIN LINE GRAVITY SEWERS:

PROCEDURE:

- a. PLUG PIPE OUTLETS WITH SUITABLE TEST PLUGS. BRACE EACH PLUG SECURELY.
- b. PIPE AIR SUPPLY TO PIPELINE TO BE TESTED IN SUCH MANNER THAT AIR SUPPLY MAY BE SHUT OFF, PRESSURE OBSERVED, AND AIR PRESSURE RELEASED FROM PIPE WITHOUT WORKMEN ENTERING MANHOLE.
- c. ADD AIR SLOWLY TO PORTION OF PIPE UNDER TEST UNTIL INTERNAL PRESSURE OF LINE IS RAISED TO APPROXIMATELY 4 PSIG, BUT LESS THAN 5 PSIG.
- d. SHUT AIR SUPPLY OFF AND ALLOW AT LEAST 2 MINUTES FOR AIR PRESSURE TO STABILIZE.
- e. WHEN PRESSURE HAS STABILIZED AND IS AT OR ABOVE STARTING TEST PRESSURE OF 3.5 PSI, START TEST.
- f. DETERMINE TIME IN SECONDS WITH STOPWATCH FOR PRESSURE TO FALL 0.5 PSIG SO THAT PRESSURE AT END OF TIME IS AT OR ABOVE 3.0 PSIG.
- g. COMPARE OBSERVED TIME WITH MINIMUM ALLOWABLE TIMES IN CHART BELOW FOR PASS/FAIL DETERMINATION.

AIR TESTING PASS/FAIL TESTING CRITERIA
SPECIFICATION TIME FOR LENGTH (L) SHOWN (MIN-SEC)

1 Pipe Diameter (in.)	2 Minimum Time (min-sec)	3 Length for Minimum Time (ft.)	4 Time for Longer Length (min-sec)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.
4	1:55	597	1:04	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:30	798	1:27	2:50	2:50	2:50	2:50	2:50	2:50	2:50
8	3:17	298	1:47	3:47	3:47	3:47	3:47	3:48	3:48	3:48
10	4:45	259	1:18	4:43	4:43	4:43	4:43	4:43	4:43	4:43
12	5:40	199	1:09	5:40	5:40	5:42	5:42	5:42	5:42	5:42
15	7:05	159	1:01	7:05	7:05	7:05	7:05	7:05	7:05	7:05
18	8:59	133	1:04	8:59	8:59	8:59	8:59	8:59	8:59	8:59
24	11:30	99	1:01	11:30	11:30	11:30	11:30	11:30	11:30	11:30

3. SAFETY PRECAUTIONS:

- LOW-PRESSURE AIR TEST MAY BE DANGEROUS TO PERSONNEL IF, THROUGH LACK OF UNDERSTANDING OR CARELESSNESS, LINE IS OVERPRESSURIZED OR PLUGS ARE INSTALLED IMPROPERLY. IT IS EXTREMELY IMPORTANT THAT VARIOUS PLUGS BE INSTALLED SO AS TO PREVENT THE SUDDEN EXPULSION OF POORLY INFLATED PLUGS. AS EXAMPLE OF HAZARD, FORCE OF 250-LB IS EXERTED ON 8-IN. PLUG BY INTERNAL PRESSURE OF 5 PSI. OBSERVE FOLLOWING SAFETY PRECAUTIONS:
 - a. NO PERSON SHALL BE ALLOWED IN MANHOLES DURING TEST OR WHEN PLUGGED PIPE IS UNDER PRESSURE.
 - b. GAUGES, AIR PIPING MANIFOLDS AND VALVES SHALL BE LOCATED AT TOP OF GROUND.
 - c. INSTALL AND BRACE PLUGS SECURELY.
 - d. DO NOT OVERPRESSURE LINES.

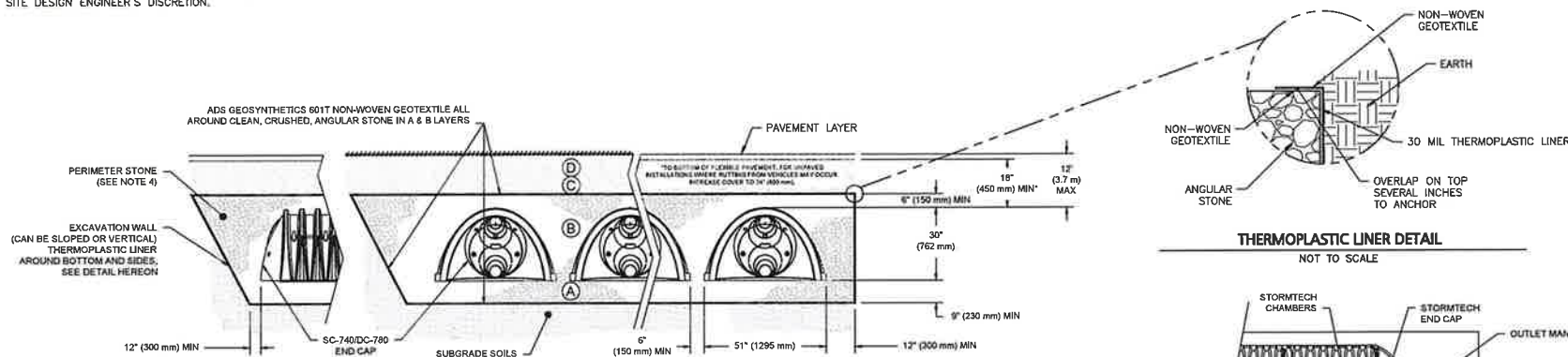
4. GROUNDWATER ELEVATION:

ACCEPTABLE FILL MATERIALS: STORMTECH DC-780 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

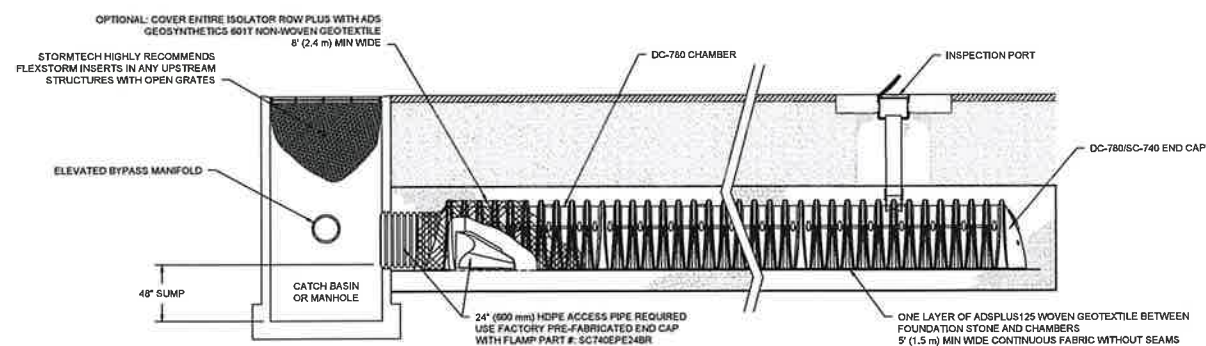


NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- DC-780 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- COORDINATE WITH THE PROJECT GEOTECHNICAL ENGINEER FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/IN, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

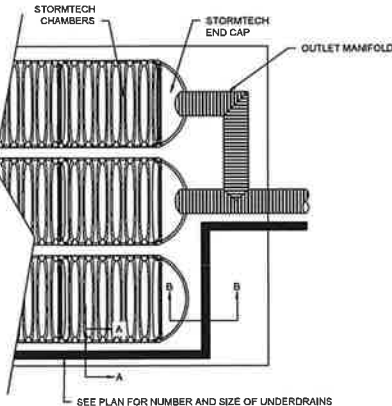
DC-780 - CROSS SECTION DETAIL

NOT TO SCALE

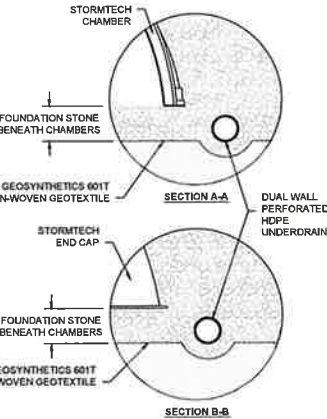


DC-780 - ISOLATOR ROW PLUS DETAIL

NOT TO SCALE



SEE PLAN FOR NUMBER AND SIZE OF UNDERDRAINS

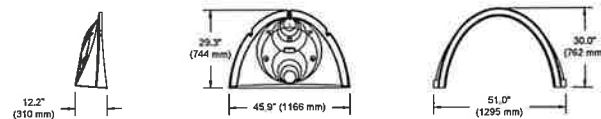
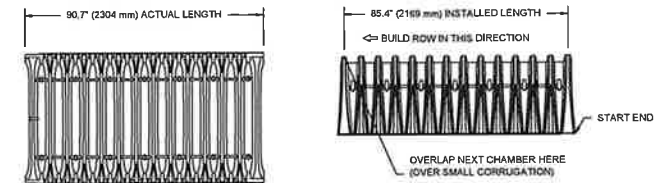


DC-780 UNDERDRAIN DETAIL

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STORMTECH DC-780 CHAMBER DETENTION SYSTEM

NOT TO SCALE



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	46.2 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE	78.4 CUBIC FEET	(2.20 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, 9" (229 mm) BELOW, AND 6" (152 mm) BETWEEN CHAMBERS

PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE08B / SC740EPE08BPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	0.5" (13 mm)
SC740EPE08T / SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)
SC740EPE24BR*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B/SC740EPE24BR ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2684.

* FOR THE SC740EPE24B/SC740EPE24BR THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

TECHNICAL SPECIFICATIONS

NOT TO SCALE

DC-780 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH DC-780.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/IN. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.



PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE	07-25-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	SM	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying environmental consulting • landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

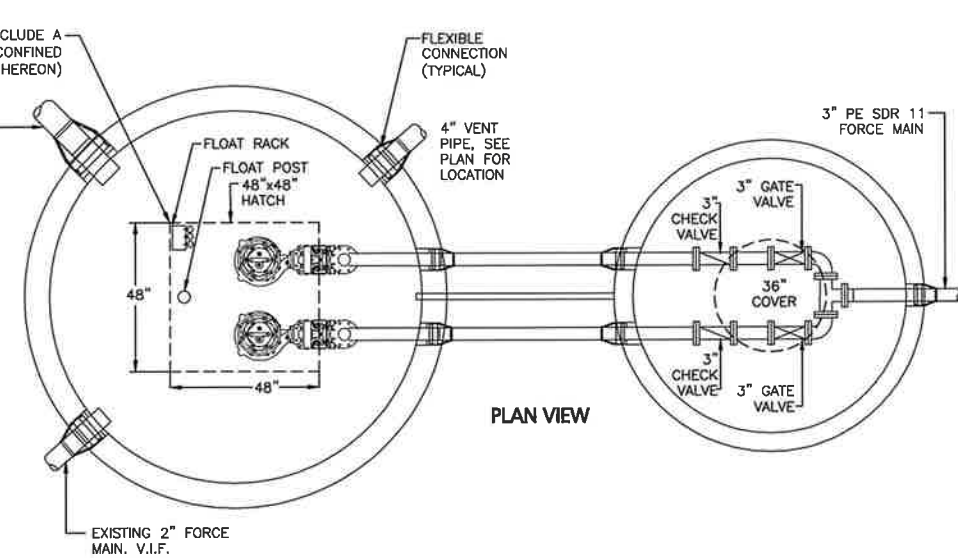
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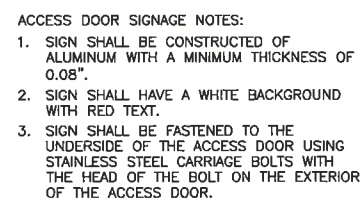
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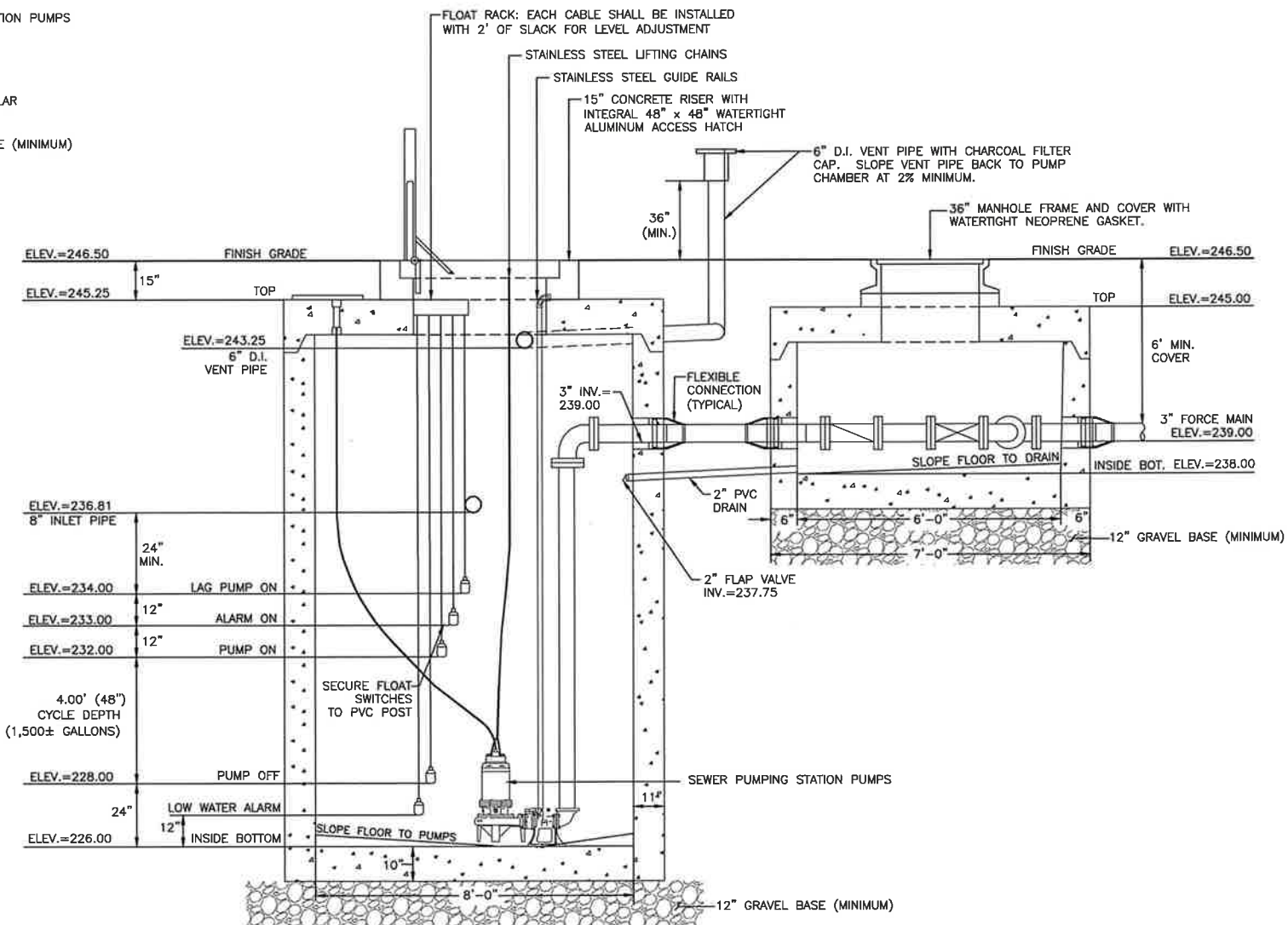
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SECTION VIEW
PUMP #2



ACCESS DOOR SIGNAGE



SEWER PUMPING STATION
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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

1	09-05-23	ISSUED FOR AdT
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APPLICANT:

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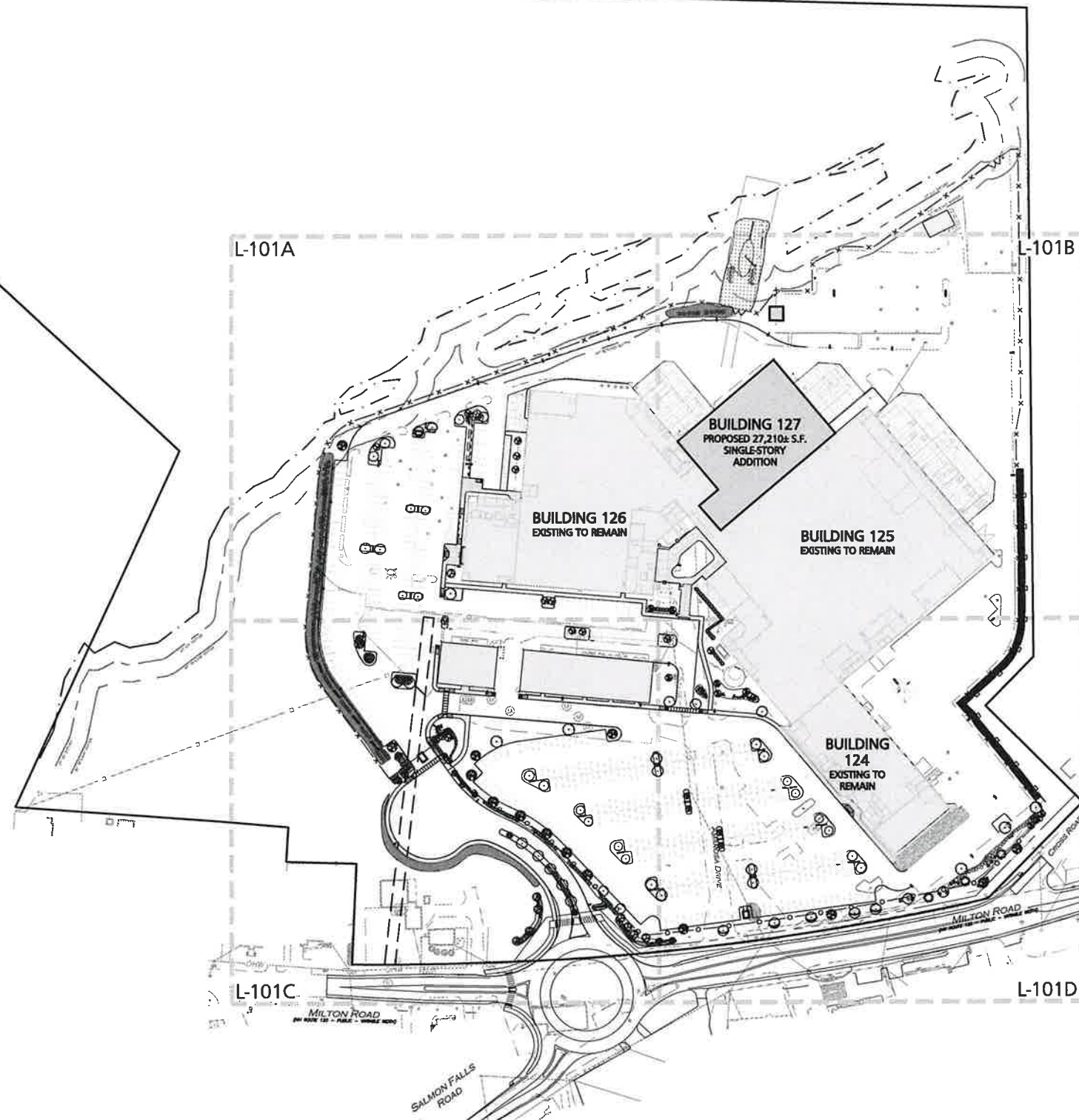
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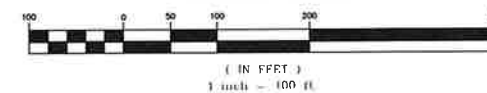
LEGEND

DECIDUOUS TREE	
EVERGREEN TREE	
FLOWERING TREE	
SHRUBS	
MULCH BED	
PERENNIALS/GROUNDCOVER	
EROSION CONTROL SEED MIX	
CONSERVATION SEED MIX	
DETENTION BASIN SEED MIX	

NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ON-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. "EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER, NH, FOR SIG SAUER INC.", DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
3. OFF-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM DOUCET SURVEY, LLC. "EXISTING CONDITIONS PLAN FOR HOYLE, TANNER, & ASSOCIATES, INC. OF MILTON ROAD (NH ROUTE 125) AND AMAROSA DRIVE INTERSECTION, ROCHESTER, NH" DATED JUNE 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
4. NO MATERIAL CONTAINING ANY LIVING OR VIBILE PORTION OF PLANTS ON THE NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST (AGR3800 TABLE 3800.1) SHALL BE TRANSPORTED TO OR FROM CONSTRUCTION SITE WITHOUT NOTIFICATION AND APPROVAL FROM THE NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE PER RSA 430:55. PHONE:207-863-7100
5. ALL LANDSCAPED AREAS WITH SHRUBS, TREES, AND PERENNIALS TO HAVE 12" MINIMUM DEPTH OF TOPSOIL. THE 12" OF TOPSOIL AROUND TREES AND SHRUBS DOES NOT INCLUDE AMENDED PLANTING SOIL WITHIN TREE / SHRUB PIT FOR FULL DEPTH OF ROOTBALLS. SEE PLANTING DETAILS FOR PLANTING DEPTH AT SHRUBS AND TREES. ALL AREAS OF LOAM AND SEED TO HAVE 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL TO BE TESTED BY CONTRACTOR, AND APPROVED BY A&M PRIOR TO PURCHASE AND OR PLACEMENT. GENERAL CONTRACTOR, DEMOLITION CONTRACTOR, AND LANDSCAPE CONTRACTOR TO COORDINATE PROPER DEPTH OF EXISTING MATERIAL REMOVAL ACROSS SITE SO THAT 12" MINIMUM AND 6" MINIMUM DEPTHS OF PROPOSED TOPSOIL NOTED ABOVE ARE MET AT NO ADDITIONAL COST TO OWNER. SEE TOPSOIL DETAIL.
6. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

GRAPHIC SCALE



Bethany C. Dermody
PROFESSIONAL LANDSCAPE ARCHITECT FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV DATE DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO. 2912-01A DATE: 07-25-23

SCALE: 1" = 100' DWG. NAME: C2912-01A

DESIGNED BY: BCD CHECKED BY: BDJ

PREPARED BY:



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DRAWING TITLE: SHEET No.

OVERALL
LANDSCAPE PLAN

L-101

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1. 25' WETLAND BUFFER TO BE MARKED WITH SIGNAGE AS SHOWN OR EQUAL. SEE PLAN FOR LOCATIONS.
2. SIGNAGE TO BE FROM CITY OF ROCHESTER PLANNING DEPT.
3. THE CITY HAS METAL WETLAND MARKERS AVAILABLE FOR PURCHASE AT THE PLANNING AND DEVELOPMENT DEPARTMENT. (SIGNS COST \$1 EACH.) SIGNS CAN BE MOUNTED TO EXISTING TREES. NAILS USED TO ATTACH SIGNS TO TREES SHOULD NOT BE FLUSH TO THE BARK OF THE TREE, THERE SHOULD BE A GAP TO ALLOW FOR TREE GROWTH. NAILS TO BE STAINLESS STEEL.

NOT TO SCALE

1



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|--------------------------|---|
| DECIDUOUS TREE |  |
| EVERGREEN TREE |  |
| FLOWERING TREE |  |
| SHRUBS |  |
| MULCH BED |  |
| PERENNIALS/GROUNDCOVER |  |
| EROSION CONTROL SEED MIX |  |
| CONSERVATION SEED MIX |  |
| DETENTION BASIN SEED MIX |  |

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND IS POSSIBLY INACCURATE. MEASUREMENTS TAKEN IN THE FIELD, THIS INFORMATION CANNOT BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF THE CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DISCLOSE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK, RECESS OR REMOVAL OF ANY LOCATION OF UTILITIES, AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

2. EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. EXISTING CONDITIONS ARE 72 ANDROSS DRIVE, ROUTE 100, NH, 03055. DATED MAY 2002. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.

3. NO MATERIAL CONTAINING ANY LIVING OR Viable PORTION OF PLANTS ON THE NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST (AGR3800 TABLE 3600.1) SHALL BE TRANSPORTED TO OR FROM THE CONSTRUCTION SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FROM THE NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE PER RSA 430:55.
PHONE:207-883-7100

4. ALL LANDSCAPED AREAS WITH SHRUBS, TREES, AND PERENNIALS TO HAVE 12" MINIMUM DEPTH OF TOPSOIL. THE 12" OF TOPSOIL ABOVE TREES AND SHRUBS DOES NOT INCLUDE AMENDED PLANTING SOIL WITHIN THE PLANT ROOT ZONE. FULL DEPTH OF ROOTZONE SHALL BE LANTING DETAILS FOR PLANTING DEPTH AT SHRUBS AND TREES. ALL AREAS OF LOAM AND SEED TO HAVE 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL TO BE TESTED BY CONTRACTOR, AND APPROVED BY ASM PRIOR TO PURCHASE AND OR PLACEMENT. GENERAL CONTRACTOR, DEMOLITION CONTRACTOR, AND LANDSCAPE CONTRACTOR TO COORDINATE PROPER DEPTH OF EXISTING MATERIAL REMOVAL ACROSS SITE SO THAT 12" INIMUM AND 6" MINIMUM DEPTHS OF PROPOSED TOPSOIL DEPTHS WILL BE MET AT NO ADDITIONAL COST TO OWNER. SEE TOPSOIL DETAIL.

5. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION, ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESS, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.



REV	DATE	DESCRIPTION
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SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868

SCALE: 1" = 30' DWG. NAME: C2912-01A

DESIGNED BY:	BCD	CHECKED BY:	BDJ
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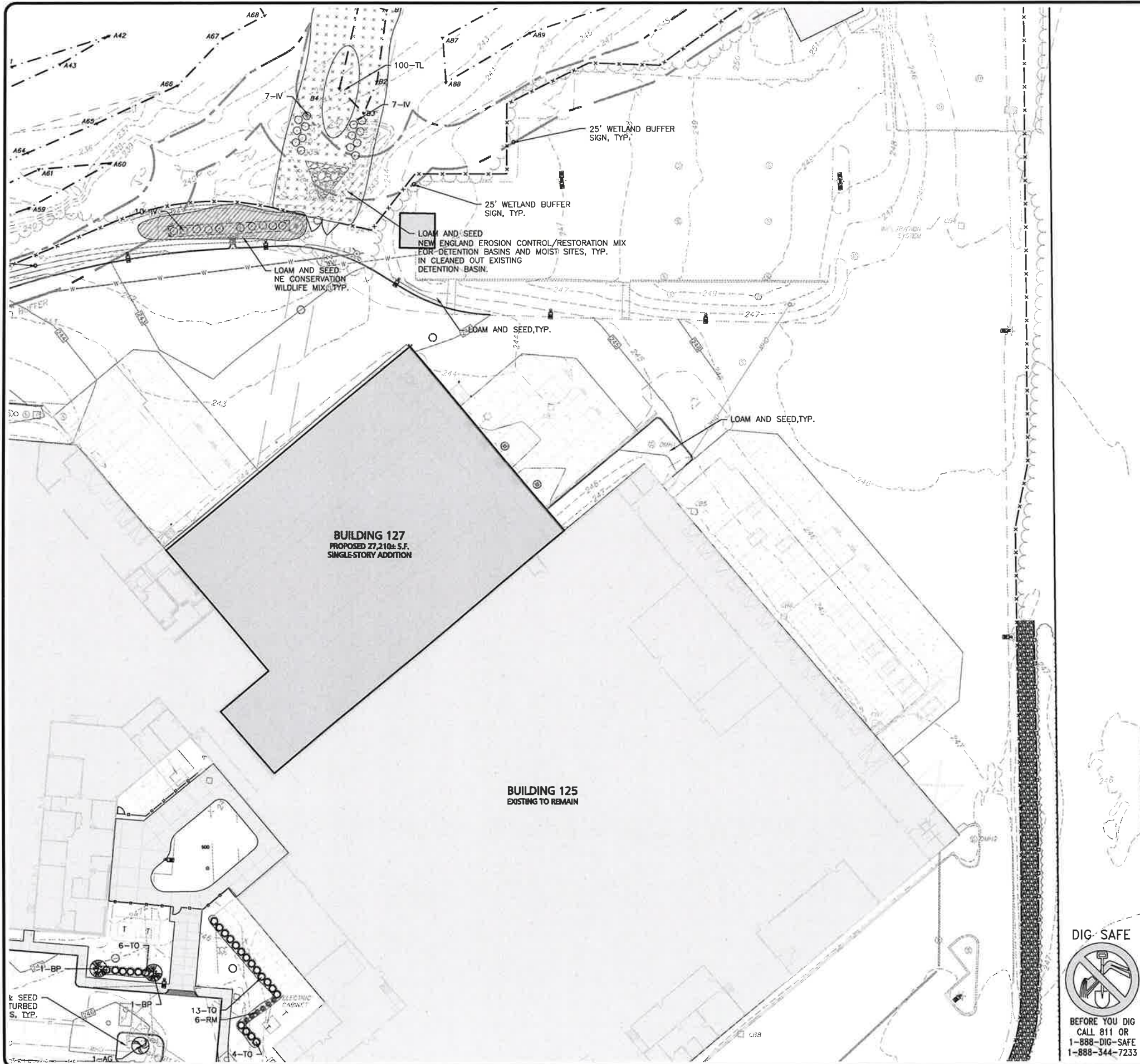
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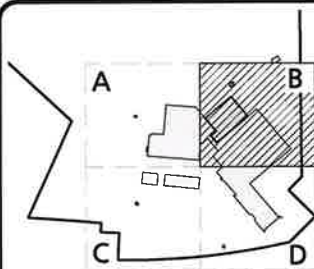
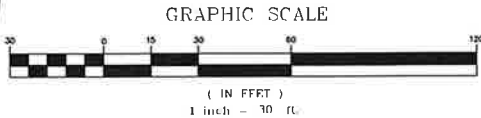
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EVERGREEN TREE	
FLOWERING TREE	
SHRUBS	
MULCH BED	
PERENNIALS/GROUNDCOVER	
EROSION CONTROL SEED MIX	
CONSERVATION SEED MIX	
DETENTION BASIN SEED MIX	

- NOTES**
1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
 2. EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER, NH, FOR SIG SAUER INC., DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
 3. NO MATERIAL CONTAINING ANY LIVING OR Viable PORTION OF PLANTS ON THE NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST (AGR3800 TABLE 3800.1) SHALL BE TRANSPORTED TO OR FROM CONSTRUCTION SITE WITHOUT NOTIFICATION AND APPROVAL FROM THE NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE PER RSA 430:55. PHONE:207-893-7100
 4. ALL LANDSCAPED AREAS WITH SHRUBS, TREES, AND PERENNIALS TO HAVE 12" MINIMUM DEPTH OF TOPSOIL. THE 12" OF TOPSOIL AROUND TREES AND SHRUBS DOES NOT INCLUDE AMENDED PLANTING SOIL WITHIN TREE / SHRUB PIT FOR FULL DEPTH OF ROOTBALLS. SEE PLANTING DETAILS FOR PLANTING DEPTH AT SHRUBS AND TREES. ALL AREAS OF LOAM AND SEED TO HAVE 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL TO BE TESTED BY CONTRACTOR AND APPROVED BY A&M PRIOR TO PURCHASE AND OR PLACEMENT. GENERAL CONTRACTOR, DEMOLITION CONTRACTOR, AND LANDSCAPE CONTRACTOR TO COORDINATE PROPER DEPTH OF EXISTING MATERIAL REMOVAL ACROSS SITE SO THAT 12 MINIMUM AND 6" MINIMUM DEPTHS OF PROPOSED TOPSOIL NOTED ABOVE ARE MET AT NO ADDITIONAL COST TO OWNER. SEE TOPSOIL DETAIL.
 4. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

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BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233



SHEET KEY PLAN



Bethany C. Dermody
PROFESSIONAL LANDSCAPE ARCHITECT FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
**PHASE 2 OF MASTER PLAN
7 & 16 AMAROSA DRIVE
ROCHESTER, NH 03868**

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	BCD	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering • land surveying environmental consulting • landscape architecture
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MANCHESTER, NH 03103
TEL: (603) 627-5500
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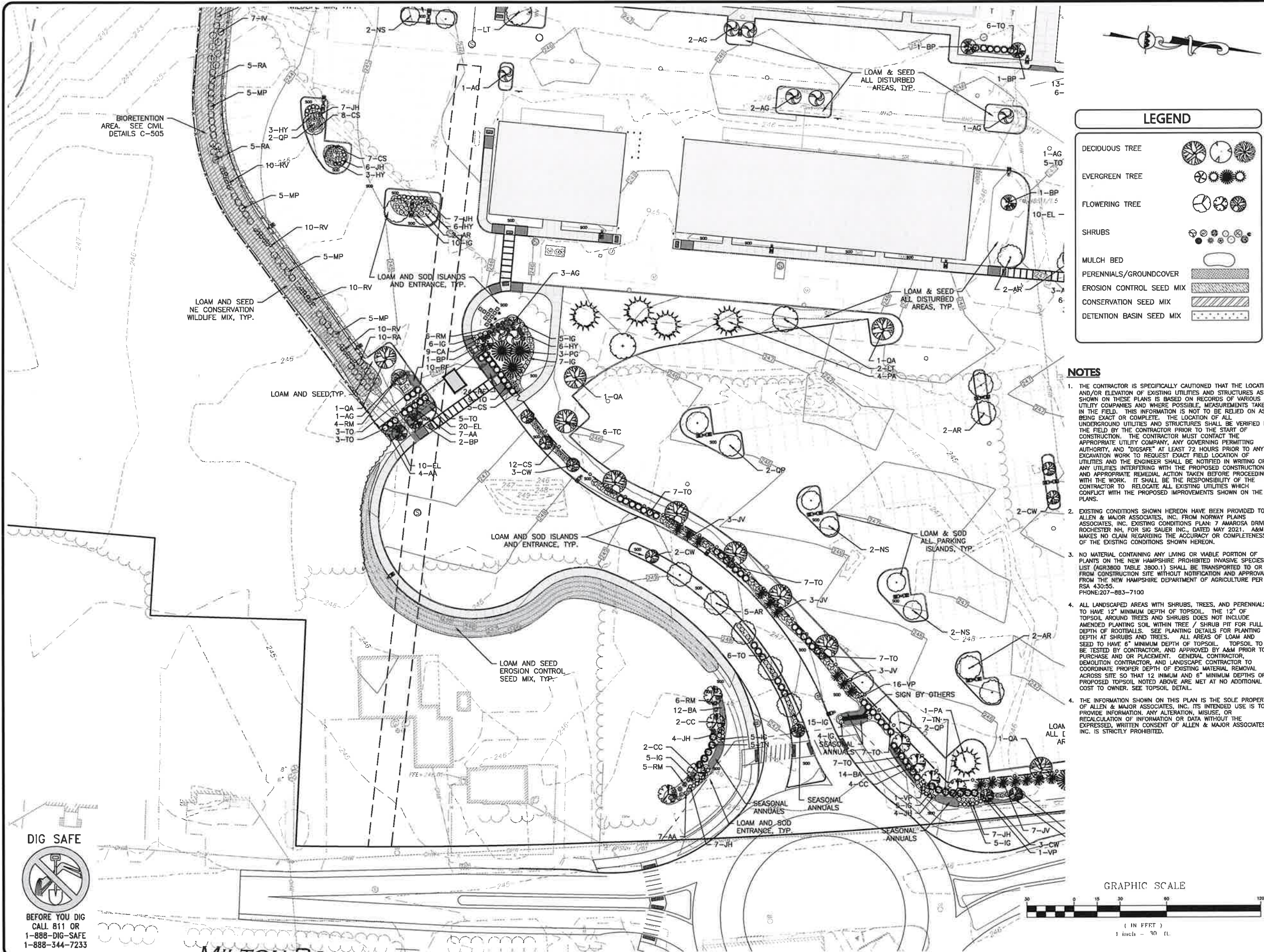
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DRAWING TITLE:	SHEET No.
LANDSCAPE PLAN	L-101B

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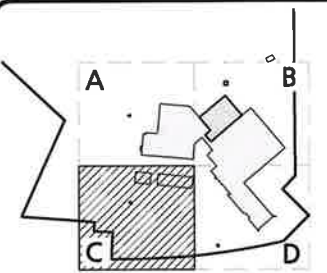
LEGEND

DECIDUOUS TREE	
EVERGREEN TREE	
FLOWERING TREE	
SHRUBS	
MULCH BED	
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EROSION CONTROL SEED MIX	
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GRAPHIC SCALE



SHEET KEY PLAN



Bethany C. Dermody
PROFESSIONAL LANDSCAPE ARCHITECT FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	PER COMMENTS
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1. 8/21/2023 PER COMMENTS

APPLICANT:
SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:
PHASE 2 OF MASTER PLAN
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PROJECT NO.	2912-01A	DATE:	07-25-23
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DRAWING TITLE:	SHEET No.
LANDSCAPE PLAN	L-101C

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LOAM AND SODDING NOTES:

CONTRACTOR SHALL SOD AREAS NOTED ON THE PLANS.

SOD IS TO BE A BLEND OF FOUR TO FIVE CURRENT AND IMPROVED HYBRID BLUEGRASS AND FESCUE MIXES APPROPRIATE FOR BOTH SEMI-SHADED AND AREAS OF SUN.

HYBRIDS MAY INCLUDE: BLACKSTONE KENTUCKY BLUEGRASS, AWARD KENTUCKY BLUEGRASS, CHALLENGER KENTUCKY BLUEGRASS, BLACKBURG II KENTUCKY BLUEGRASS OR COMPARABLE AND EQUAL BLUEGRASS HYBRIDS.

1. SOD SHALL BE HIGH QUALITY, NURSERY GROWN ON CULTIVATED MINERAL AGRICULTURAL SOILS. SOD SHALL BE MOIST, AND MACHINE CUT AT A UNIFORM SOIL THICKNESS OF AT LEAST ¾" AT TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL INCLUDE TOP GROWTH AND THATCH. SOD SHALL BE FREE OF DISEASES, WEEDS, BARE SPOTS, OR INSECTS.

2. SODDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RE-SODDING OF BARE SPOTS. IF UNABLE TO SOD WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLUX TERRA HP-FGM SOIL STABILIZER" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE), AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SODDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING AT NO ADDITIONAL COST TO OWNER.

3. COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE FERTILIZER CONTAINING AT LEAST 50% OF THE NITROGEN OF WHICH IS DERIVED FROM NATURAL ORGANIZE SOURCES OF UREAFORM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.

4. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RE-SODDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED.

6. NO COMMERCIAL FERTILIZERS ARE TO BE ALLOWED IN WETLAND BUFFER AREAS.

LOAM AND SEEDING NOTES:

CONTRACTOR SHALL SEED ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER MATERIALS, AND AT AREAS SHOWN ON THE PLAN PER SPECIFICATIONS BELOW

SCIENTIFIC NAME	COMMON NAME	PROPORTION	PERCENT	PERCENT
			BY WEIGHT	PURITY GERMINATION
FESTUCA RUBRA "RUBRA"	CREEPING RED FESCUE	37%	95%	90%
PAO PRAENTENSIS "BARON"	BARON KENTUCKY BLUEGRASS	30%	85%	90%
FESTUCA ARUNDINACEA	FINE FESCUE	15%	95%	90%
FESTUCA ARUNDINACEA	TALL FESCUE	18%	95%	80%

1. SEED TO BE SPREAD AT MINIMUM RATE OF 5 LBS. PER 1000 SQ. FT.
2. SEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RESEEDING OF BARE SPOTS. IF UNABLE TO SEED WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLUX TERRA HP-FGM SOIL STABILIZER" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE), AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SEEDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING AT NO ADDITIONAL COST TO OWNER.
3. COMMERCIAL FERTILIZER SHALL BE APPLIED (EXCEPT IN WETLAND BUFFER AREAS) AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE SLOW RELEASE FERTILIZER CONTAINING AT LEAST 50% OF THE NITROGEN OF WHICH IS DERIVED FROM NATURAL ORGANIZE SOURCES OF UREAFORM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.
4. LAWN AREAS TO BE SEEDD BY SOWING EVENLY WITH AN APPROVED MECHANICAL SEEDER AT THE RATE OF TEN POUNDS PER 1000 SQUARE FEET.
5. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RESEEDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED.
6. NO COMMERCIAL FERTILIZERS ARE TO BE ALLOWED IN WETLAND BUFFER AREAS.

LANDSCAPE NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF ROCHESTER, NH.
2. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES, ANY PERMITTING AGENCIES, AND "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS IN ADVANCE OF ANY WORK THAT WILL REQUIRE EXCAVATION. CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE OF NAY CONFLICTS IN WRITING.
4. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA, ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.
5. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
6. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT LIST. QUANTITIES SHOWN ON PLANS SHALL GOVERN OVER PLANT LIST.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE GUIDELINES ESTABLISHED BY THE STANDARDS FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE.
10. ALL DISTURBED AREAS NOT OTHERWISE NOTED SHALL RECEIVE 6" OF SUITABLE LOAM & SEED LAWNS WITH 3:1 OR GREATER SLOPES SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET.
11. ANY FALL TRANSPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING.
12. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.
13. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 3" OF PINE BARK MULCH. GROUND COVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH
14. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.
15. ALL TREE STAKES SHALL BE STAINED DARK BROWN.
16. CONTRACTOR RESPONSIBLE FOR WATERING, AND RESEEDING OF BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.
17. ALL PARKING ISLANDS PLANTED WITH SHRUBS SHALL HAVE 18" OF TOP SOIL. FINISH GRADE SHALL BE EQUAL TO THE TOP OF CURB.
18. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
19. ALL PROPOSED LANDSCAPE AREAS (FROM THE FACE OF THE BUILDING TO THE ROAD, INCLUDING THE ENTRANCE AND PARKING LOT) INCLUDING MOWED LAWNS, TREES, SHRUB BEDS, AND PERENNIALS SHALL BE PROVIDED WITH WATER EFFICIENT UNDERGROUND IRRIGATION. DESIGN AND INSTALLATION OF IRRIGATION SYSTEM TO BE PERFORMED BY AN APPROVED IRRIGATION DESIGN BUILD CONTRACTOR OR BY AN APPROVED EQUAL, TO BE DETERMINED BY THE OWNERS REPRESENTATIVE AND LANDSCAPE ARCHITECT. IRRIGATION SYSTEM IS TO BE DESIGNED FOR EFFICIENT WATER USAGE INCLUDING: USE OF DRIP IRRIGATION FOR SHRUBS AND PERENNIALS, IRRIGATION SYSTEM WITH HEAD-TO-HEAD COVERAGE, A CENTRAL SHUT-OFF VALVE, AND A RAIN SENSOR TO SHUT OFF IRRIGATION DURING RAIN EVENTS.

SITE PLAN REGULATIONS: ZONE GENERAL INDUSTRIAL - LANDSCAPING

SECTION 5 - LANDSCAPING (GENERAL INDUSTRIAL ZONE IS EXEMPT BUT ENCOURAGED TO CONFORM)	NOTED	PROVIDE	NOTES
C.-4 TREES PREFERRED TO BE BROAD LEAFED SHADE TREES TO REACH 30' AT MATURITY	30' AT MATURITY	AS NOTED	
D-2,3. 15' FRONT LS BUFFER, 10' SIDE LS BUFFER	15' FRONT, 10' SIDE LANDSCAPE BUFFER	AS NOTED	
D-8b. ONE SHADE TREE EVERY 40' IN FRONT LS BUFFER.	1 TREE EVERY 40' IN FRONT LANDSCAPE BUFFER	AS NOTED	
D-8c. TWO SHADE TREES 40' APART WITHIN THE FRONT 50' OF EACH SIDE BUFFER	2 SHADE TREE SIDE BUFFER	AS NOTED	
E-5. LANDSCAPING PENINSULA IN PARKING LOT THE SAME WIDTH AS THE PARKING SPACES, PLANTED WITH 1 SHADE TREE MIN.	LS PENINSULA THE SAME WIDTH AS PARKING	AS NOTED	
E-1-11. PARKING LOTS - OFFSTREET PARKING SCREENED FROM PUBLIC 3 ½' TALL BUFFER; ONE SHADE TREE IN EACH END CAP. NO ONE SPOT IS SITUATED 75' FROM TREE TRUNK;	PUBLIC BUFFER, TREE IN END CAP, NO SPOT W/O TREE 75' FROM TREE TRUNK	AS NOTED	
F. SHADE TREES TO BE 3-3.5" CAL MIN. ORNAMENTAL TREES TO BE 2-2.5" CAL MIN. EVERGREEN TREES TO BE 6" HT. MIN. SHRUBS TO BE 2' TALL MIN OR 3 GAL CONTAINER.	SIZES TO BE FOLLOWED	AS NOTED	

SITE PLANTING SCHEDULE -TREES, SHRUBS & PERENNIALS

DECIDUOUS AND FLOWERING TREES

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	COMMENTS
AR	25	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	3" CAL.	AS SHOWN	B&B
AG	16	AMELANCHIER CANADENSIS	SERVICEBERRY	6-7' HT.	AS SHOWN	B&B, MULTISTEM
BP	12	BETULA PAPYRIFERA	PAPER BIRCH	10-12' HT.	AS SHOWN	B&B, MULTISTEM
CF	2	CORNUS FLORIDA 'CHEROKEE BRAVE'	CHEROKEE BRAVE DOGWOOD	2-2.5" CAL.	AS SHOWN	B&B
CW	11	CRATEAGUS CRUSGALLI V. NERMIS	THORNLESS COCKSPUR HAWTHORN	2-2.5" CAL.	AS SHOWN	B&B
LT	6	LIRIODENDRON TULIPIFERA	TULIP TREE	3" CAL.	AS SHOWN	B&B
CC	9	CERCIS CANADENSIS	REDBUD	2-2.5" CAL.	AS SHOWN	B&B
QA	8	QUERCUS ALBA	WHITE OAK	3" CAL.	AS SHOWN	B&B
QP	15	QUERCUS PALUSTRIS	PIN OAK	3" CAL.	AS SHOWN	B&B
TC	6	ILIA AMERICANA 'AMERICAN SENTRY'	AMERICAN SENTRY BASSWOOD	3" CAL.	AS SHOWN	B&B
NS	12	NYSSA SYLVATICA 'GREEN GABLE'	GREEN GABLE TUPELO	2-2.5" CAL.	AS SHOWN	B&B

EVERGREEN TREES

AC	3	ABIES CONCOLOR	WHITE FIR	8-10' HT.	AS SHOWN	B&B
PG	15	PICEA GLAUCA	WHITE SPRUCE	6-7' HT.	AS SHOWN	B&B
PA	6	PICEA RUBENS	RED SPRUCE	6-7' HT.	AS SHOWN	B&B
JV	30	JUNIPERUS VIRGINIANA	EASTERN RED CEDER	6-7' HT.	AS SHOWN	B&B
TO	89	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	6-7' HT.	AS SHOWN	B&B
TN	52	THUJA OCCIDENTALIS 'NIGRA'	DARK AMERICAN ARBORVITAE	6' HT.	AS SHOWN	B&B
PS	24	PINUS STROBUS	WHITE PINE	6-7' HT.	AS SHOWN	B&B

SHRUBS

AA	79	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	RED CHOKECHERRY	#5	AS SHOWN	POT
CA	19	CLETHRA ALNIFOLIA 'VANILLA SPICE'	VANILLA SPICE SUMMERSWEET	#5	AS SHOWN	POT
CS	34	CORNUS SERICEA 'ARCTIC FIRE'	ARCTIC FIRE RED OSIER DOGWOOD	#5	AS SHOWN	POT
HY	17	HYDRANGEA ARBORESCENS 'ANNABELLE'	ANNABELLE SMOOTH HYDRANGEA	#5	AS SHOWN	POT
IG	87	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	#5	AS SHOWN	POT
IV	49	ILEX VERTICILLATA	WINTERBERRY	#3	AS SHOWN	POT
IVM	3	ILEX VERTICILLATA 'SOUTHERN GENTLEMAN'	WINTERBERRY MALE POLLINATOR	#5	AS SHOWN	POT
JH	42	JUNIPERUS HORIZONTALIS 'PLUMOSA'	ANDORRA CREEPING JUNIPER	#3	AS SHOWN	POT
MP	62	MORELLA PENSYLVANICA	BAYBERRY	#5	AS SHOWN	B&B
RA	54	RHUS AROMATICA	FRAGRANT SUMAC	#3	AS SHOWN	B&B
RM	27	RHODODENDRON MAXIMUM	GREAT LAUREL RHODODENDRON	#5	AS SHOWN	B&B
RV	40	ROSA VIRGINIANA	VIRGINIA ROSE	#3	AS SHOWN	B&B
SV	12	SYRINGA VULGARIS 'LUDWIG SPAETH'	LUDWIG SPAETH LILAC	#5	AS SHOWN	B&B
VP	24	VIBURNUM NUDUM 'WINTERTHUR'	WINTERTHUR VIBURNUM	#10	AS SHOWN	B&B

PERENNIALS/GRASSES

BA	28	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	#1	30" O.C.	STAGGERED
RF	51	RUDBECKIA FULGIDA v. FULGIDA	BLACK EYED SUSAN	#1	24" O.C.	STAGGERED
EL	50	EUPATORIUM DUBIUM 'LITTLE JOE'	LITTLE JOE PYE WEED	#1	24" O.C.	STAGGERED
TL	100	* TYPHA LATIFOLIA	COMMON CATTAIL	2" PLUG	24" O.C.	STAGGERED

- * NATIVE HERBACEOUS PLUGS AND NATIVE SEED MIXES TO BE FROM NE WETLAND PLANTS. SEE L-501 FOR SEED MIXES. ANNUALS TO BE PROVEN WINNERS NORTH SHORE MIX OR EQUAL FOR SPRING/SUMMER



PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

1.	8/21/2023	PER COMMENTS
REV	DATE	DESCRIPTION

APPLICANT:

SIG SAUER REAL ESTATE INC.
72 PEASE BLVD
NEWINGTON, NH 03801

PROJECT:

PHASE 2 OF MASTER PLAN
7 &16 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	07-25-23
SCALE:	AS NOTED	DWG. NAME:	C2912-01A
DESIGNED BY:	BCD	CHECKED BY:	BDJ

PREPARED BY:



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ASSOCIATES, INC.

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DRAWING TITLE:	SHEET No.
LANDSCAPE NOTES	L-102

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